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RETINAL HEMORRHAGES OF THE NEWBORN*

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THIS is a subject which because of its potential importance in certain eye defects in children, has received all too little attention. The frequency of these lesions is not generally appreciated and relatively little data concerning them exists in American literature. Earlier studies abroad have demonstrated many interesting findings and suggested even more for further study.

Much information is needed concerning the mechanism of retinal hemorrhage production and its relation to labor and delivery. This study was made as another effort to correlate these relationships. All labors in this series were personally supervised by the writer and all ophthalmoscopic examinations made by him. A second consideration is the diagnostic or prognostic value of the presence of retinal hemorrhages in intracranial hemorrhage of the newborn.

TABLE 1

Author		Cases studied	Retinal hemorrhages
Konigstein		281	10 %
Schleich	(1884)	150	32 %
Paul	(1900)	200	34.5 %
Sicherer	(1909)	400	16.25%
Jacobs	(1924)	100	12.1 %
Rowland	(1927)	400	2.75%

These aspects of the subject have in some way been commented upon by certain of numerous writers. Jaeger (1861) made the first systematic study of ocular injuries of the newborn. Thorough studies by Wolff (1905), Runge (1908), and Goldwasser (1914) have aroused much interest in the subject in obstetrics literature. Ehrenfest (1922) thoroughly summarized the literature in his excellent monograph and Jacobs (1924) from the same clinic submitted a most carefully studied series of cases. These have been supplemented by Rowland (1927) in a large and carefully analyzed series.

Of what value is ophthalmoscopic examination in the newborn? What factors during labor or delivery are responsible for these lesions? What, if any, are the future effects on the child? Certainly more observations are necessary before these questions can be satisfactorily answered.

The frequency of retinal hemorrhages in the newborn as reported by various authors is listed in Table 1:

Their incidence as shown varied from three to thirty-four per cent. Such a disparity of figures can only be partially explained. Naumoff in his anatomical study of the eyes found retinal hemorrhages in twenty-five per cent. of stillborn infants. Coburn (1906) examined thirty-seven children, stillborn or dying during the first three days. In this group he found retinal hemorrhages seventeen times (46%). In three instances the hemorrhages were subretinal and in four subhyaloidal. Proportionately often by autopsy Seefelder (1907) found frequent retinal hemorrhages in the newborn but seldom in foetal eyes. Lachman found seventeen per cent. retinal and choroidal hemorrhages in seventy-three stillborn or dying newborn infants. The high percentage of retinal hemorrhages is not surprising when we consider that many of them were probably associated with severe trauma at birth. Bilateral retinal hemorrhages were found by Schleich twenty-nine out of forty-nine times, (59%) and Sicherer reported twenty-three out of sixty-five (35%). These observations are of some importance when we come to a consideration of etiological factors.

The retinal hemorrhages of varying degree that are observed conform to two distinct types, i. e. the "flame shaped" or striate hemorrhages and the round or "blot" hemorrhages of various sizes. Both types of lesions are frequently observed in the same eye. According to Paton and Holmes the underlying histological changes are as follows: "The striate hemorrhages are those that lie in the nerve fiber layer and spread along the fibers; while the conspicuous "blot" hemorrhages that occur lie under the membrana limitans interna and separate it from the nerve fiber layer. The less conspicuous rounded hemorrhages lie in the deeper retinal layers, especially in the outer molecular layer."

The cause of retinal hemorrhage, in the newborn and its relation to the mechanism of labor is not entirely settled. The explanation given by Schleich is the one most generally accepted. Compression of the head in the birth canal dur-

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ing labor increases the pressure within one or both cavernous sinuses. This leads to congestion of the ophthalmic veins, notwithstanding their anastamoses with the facial veins. Ehrenfest pointed out how these conditions would also work a serious disturbance to the vena centralis flow. Also this explanation considers the extreme fragility of the retinal vessels of the newborn. Thus very slight increases in venous pressures may produce retinal hemorrhages. The increased incidence of retinal hemorrhage in premature infants is presumably due to the increased fragility of the retinal vessels. Sicherer in support of this theory observed that the eye lesion is on the side which is exposed to the greatest pressure during labor. Thus he notes that in an O. L. A. position the hemorrhage is most likely to occur in the right eye, or if the hemorrhage is bilateral, more marked in the right. Stumpf says, therefore, that these hemorrhages are "nothing more than an accompanying phenomenon of caput succedaneum."

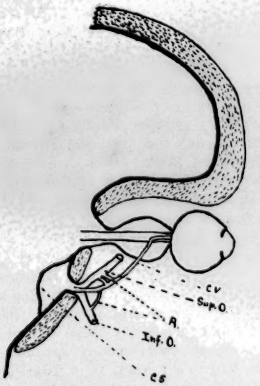

FIG. 1. Schematic relations and anastamoses of the vena centralis. cv. (central vein), Sup. O. (superior ophthalmic vein), A. (anastamoses between central vein and ophthalmic branches), Inf. O. (inferior ophthalmic vein), cs. (cavernous sinus).

Naumoff gave the general reason for these lesions or hemorrhages as increased intraeranial pressure. He believed that the cerebro-spinal fluid is forced into the inter-vaginal space of the optic nerve. A compression of the vena centralis is produced with consequent congestion of the retina and papilla. Von Hippel later showed by anatomical studies that the inter-vaginal space in the newborn eye was frequently small or entirely absent.

Retinal hemorrhages in the newborn are ascribed to other causes by different writers. Thompson and Buchanan held that these hemorrhages were due to changes in the placental circulation, resulting in increased foetal blood pressure. Paul attributed them to loops of cord about the neck. Stumpf subsequently refuted this by showing that in sixty-three babies born with loops of cord about the neck, retinal hemorrhages were found in 14.3 per cent.; in one hundred and thirty-six children without loops of cord about the neck at birth retinal hemorrhages were present in 24.3 per cent.

Wolff and Stumpf called attention to the importance of asphyxia as a causative factor. Goldwasser notes the positive observations of Tamasia and Legroux on blood extravasation in the retinae of asphyxiated animals, and similar observations by Nobiling in asphyxiated newborn infants. He believed asphyxia to be a factor of considerable importance in retinal hemorrhage production. Stumpf in eighteen cases of retinal hemorrhage found six, or 33.3 per cent. showed some degree of asphyxia.

The type of duration of labor according to Stumpf has little etiological significance. On the basis that the foetal head is much protected by the intact membranes, he believed that on their rupture the head is exposed to the more severe compression of the birth canal. Therefore, according to this author, the period of hemorrhage production is directly associated with the time of the rupture of the membranes. In support of this view he found retinal hemorrhages in 4.5 per cent. of cases with rupture of membranes *five minutes before birth* and in 33.3 per cent. with rupture *ten to twenty minutes before birth*.

Stumpf further states that retinal hemorrhages in the newborn are as frequent in labors through normal pelves as through contracted ones. Paul found contraction of the pelvis in fifty per cent. of his series of retinal hemorrhage. Jacobs notes an incidence of 10.5 per cent. contracted pelvis in his hemorrhage group. From these figures it would appear that contracted pelves play only a secondary causative part in retinal hemorrhages of the newborn.

Ehrenfest has raised the interesting question whether these hemorrhages, at least in part, may not be due to a hemorrhagic diathesis. In this case we would expect to find definite evidence of such a condition in addition to the retinal hemorrhage. Jacobs performed blood clotting time periods on all cases in which retinal hemorrhages were found. In none did he find a clotting time to exceed eight minutes, and the greater number were less than six minutes. The blood clotting time was not performed in any of this series. In three instances of hemorrhagic disease of the newborn, diagnosed clinically, ophthalmoscopic examinations were performed. One of these showed unilateral retinal hemorrhage. These together with the observations of Jacobs would lead one to think that a hemorrhagic diathesis does not play a primary part.

In this connection it is interesting that in two of the cases demonstrating severe retinal hemorrhage and dying during the first three days from intraeranial hemorrhage, multiple

small hemorrhages were found in the optic nerve. Goldwasser previously has noted hemorrhages in the nerve fasciculus. He did not note if intracranial hemorrhage was a concomitant finding.

The presence of hemorrhages in the optic nerve arouses several speculations. It is most probable that they are produced by the same mechanism as are retinal hemorrhages; i.e. by trauma, increased intracranial congestion, and rupture of the fine vessels of the fasciculus. It seems improbable that they might occur primarily and have any influence in producing retinal hemorrhages.

Stumpf and Sicherer believed that syphilis was an important cause of retinal hemorrhages in the newborn. The infrequency of syphilis reported in the series of subsequent observers and the findings of as great an incidence of retinal hemorrhage in non-luetic cases would point to other etiological factors than luetic disease.

If Schleich's theory is correct, one would expect in breech extractions a higher incidence of retinal hemorrhages than in vertex deliveries. In the breech deliveries the head will not have had an opportunity to mold, however slight, and consequently the increase of intracranial or intra sinus pressure would occur more suddenly and probably be of greater intensity because the maternal soft tissues are not so completely dilated.

In this study the eyes of one hundred and thirty-eight newborn infants were examined. The examinations of this series were conducted on the newborn wards of the Boston Lying-in Hospital. All those not specified were examined within twenty-four hours following birth. This figure is only an arbitrary one but has been used by others previously and consequently is best for purposes of comparison. These cases do not comprise a consecutive series. They were examined as it was expedient or a single examination was made in some instances because of symptoms or because of suspected intracranial injury. Because of this selection of infants who had undergone the trauma of an operative delivery one would expect the incidence of hemorrhage to be higher than in the consecutive series such as those of Jacobs or Rowland. Therefore, I do not consider the statistics presented here strictly comparable. The incidence of hemorrhage will therefore be higher than in a consecutive series.

One minim of one per cent. solution of homatrophine was instilled in each eye one half hour prior to examination. Following instillation pressure over the inner canthus was made for several minutes. A sterile nipple filled with sterile cotton and dipped in lactose solution served to divert the infant's attention and thus facilitate examination.

Of the one hundred and thirty-eight infants examined twenty-four (17%) showed retinal hemorrhages. These will be analyzed under possible etiological factors.

On the maternal side age seemed to make little difference. Thirteen of the mothers whose babies showed retinal hemorrhages were below twenty-five years and eleven above. Eight of the mothers were multiparae; sixteen primiparae. In the group where no hemorrhages were found sixty-one were multiparae; fifty-three primiparae.

Of the hemorrhage group five or twenty per cent. showed definite pelvic contraction. In this group one was of the funnel type and four of the generally contracted type. The percentage of pelvic contraction in the nonhemorrhagic group was 18.5 per cent. From these figures it appears that contracted pelves may play only a secondary part in the production of retinal hemorrhages.

Duration and character of the labors were variable; the shortest two and one quarter hours and the longest forty-eight hours. In one instance, after a very rapid primiparous labor, signs of intracranial hemorrhage appeared in the infant on the third day. Ophthalmoscopic examination at this time showed numerous severe retinal hemorrhages. Similar lesions were noted following one labor in which Vorhees bag induction was employed, and in two other cases in which primary uterine inertia was present.

Only one positive Wassermann (maternal) was found in the hemorrhage group. Jacobs in his series found none. Stumpf believed, however, that syphilis played a very considerable part in the production of these lesions, especially in premature infants. In the one hundred and fourteen mothers whose babies did not show retinal hemorrhages only one positive Wassermann was found. While it seems possible that syphilis might predispose to retinal hemorrhages, both through its effect on the vessels and on premature birth, its relatively low incidence in the reported case groups would seem to make it an accidental factor.

Anesthesia or narcosis so far as I could observe played little or no part. Five mothers of the hemorrhage group (20.8%) had morphine-scopolamine narcosis, with nitrous oxide oxygen plus ether if necessary at delivery.

One patient had morphine-scopolamine plus spinal anesthesia at delivery. If, as Wolff contended, asphyxia is such an important factor, according to popular conception one would expect to find prolific cause of retinal hemorrhage in the cases conducted by morphine-scopolamine narcosis. In Jacob's series strangely enough, twelve of the nineteen cases (63%) with retinal hemorrhages were of labors conducted by this method. In this series only one (4%) showed definite asphyxia. This child was delivered by perineal forceps, a self rotated occiput posterior position, in a primipara with a contracted pelvis. With so many other factors one could hardly ascribe asphyxia purely to the narcosis

Age	Parity	Wass.	Pelvis (type)	(Duration) Labor (character)	Anaesthetic	Delivery Rupture of Membranes before delivery	Sex	Birthweight.	Cord about neck	Caput	Position	Asphyxia	Opthalmoscopic Examination	Discharge Examination	Remarks
36307 19	I	neg.	normal	23½ hrs. Hard labor 2½ hrs.	Gas O_2 Ether	11 minutes. Easy perineal forceps	Male	7 lbs. 5½ oz.	none	none noted	L.O.A.	none	One small punctate hemorrhage between superior vessels. (Right)	Baby normal	
36321 33	I	neg.	normal	30 hrs.	Pantopon gr. 1/3 GO_2 Ether	1 hr. 19 minutes . A moderately difficult low forceps delivery.	Male	7 lbs. 10½ oz.	none	none noted	R.O.A.	none	Small hemorrhage along superior lateral vessels. (Right)	Baby normal	
36319 24	I	neg.	generally contracted	23½ hrs. Normal Primiparous labor	Morphine, Scopolamine GO_2 Ether	4 hrs. 10 minutes. Easy perineal forceps.	Male	7 lbs. 6 oz.	none	not noted	L.O.A.	none	Two small retinal hemorrhages along superior lateral vessels. (Left).	normal sub-conjunctival hemorrhages	
36439 28	II	neg.	normal	7 hrs. Normal Multiparous labor	Ether at delivery	1½ hrs. Multiparous perineal forceps (easy) because of previous 3rd degree laceration.	Female	7 lbs. 15 oz.	Two loops about neck	none noted	L.O.P.	none	Numerous small round hemorrhages over both retinae and in macular region. (Bilateral)	No abnormalities on discharge	
36528 20	I	neg.	normal	20½ hrs. normal progress.	Morphia gr.1/6 s.c. Chloral Hydrate gr.xxx per rectum. Ether at delv.	6½ hrs. Perineal forceps (easy) L.O.T.	Male	8 lbs. 5 oz.	none	none noted	L.O.P.	none	Single small hemorrhage in retina along superior nasal vein.	Scars of forceps both cheeks. Otherwise normal.	
36532 23	I	neg.	normal	Voornees bag induction for toxaemia . 5hr. labor. Good progressive labor.	GO_2 Ether	5 hrs. at induction of bag Mid-forceps-lateral episiotomy.	Male	7 lbs. 5 oz.	none	none noted	R.O.A.	Foetal heart irregular at 90. Indication for forceps Baby cried well at delv.	Medium single hemorrhage in both retina, less marked on right, but on this side a large hemorrhage near macula. (Bilateral)	Normal infant	Mother moderately severe pre-clamptic toxaemia.
36599 37	I	not recorded	normal	19½ hrs. good progress	GO_2 Ether	5 hrs. Primiparous mid-forceps. (R.O.T.) for failing foetal heart.	Female	8 lbs. 9 oz.	Cord between anterior shoulder and symphysis. Severed 1½ inches from umbilicus ? mechanism.	very much molded head. Caput	R.O.P.	Foetal heart 98 and irregular. After delivery heartbeat for 30 min. Did not breathe.	O.S. 6 small hemorrhages scattered thruout retina. O.D. massive hemorrhages into vitreous chamber (Bilateral)	Stillborn	Autopsy not permitted
36854 21	I	neg.	generally contracted	20+hrs. Slowly progressive labor. Head did not enter pelvis until onset of active labor.	Pantopon Scopolamine GO_2 Ether	not recorded. Difficult mid-forceps. Rotated from R.O.T. Narrow arch.	Female	5 lbs. 2 oz.	none	none noted	R.O.P.	None	Many small flamed shaped hemorrhages along retinal vessels in both eyes (Bilateral)	Sub-conjunctival hemorrhages on 13th day. Hypertonic reflexes on exaggerated.	
36871 36	II	neg.	normal measurements overriding head. Large baby	8 hrs. Labor moderate severity. no progress. Caesarean section	Ether. Class. Caesarean section.	At operation	Female	8 lbs. 1 oz.	none	none	L.O.A.	None	Small lancet shaped hemorrhage along superior vessel. 12 hrs. after	Normal	Baby vomited coffee ground material 12 hrs.

														(right).		Pale. Examined. Transfused with citrated blood. Uneventful convalescence.
37890 23	I	neg.	normal	9½ hrs. Progressive primiparous labor.	CO_2 Ether	30 minutes. Primiparous low forceps delivery.	Female	7 lbs. 3 oz.	cord five times about neck.	none	L.O.A.	None	Single large hemorrhage inferior and lateral to disc. (Right	Normal		
37802 16	I	neg.	normal	10 hrs. normal primiparous labor.	CO_2 Ether	45 minutes. Normal primiparous delivery.	Male	5 lbs. 9½ oz.	none	none	R.O.A.	None	Single small hemorrhage along inferior vessels. (right)	Normal		
37933 24	I	not recorded.	normal	15½ hrs. normal primiparous labor.	Morphia-scopolamine (Spinal)	25 minutes. Primiparous mid-forceps because of passage of meconium.	Male	6 lbs. 15 oz.	none	none	L.O.P.	Asphyxia livida.	Deep retinal hemorrhage and a small irregular retinal hemorrhage (Left)	Normal		
37840 23	I	neg.	normal	9½ hrs. normal primiparous labor.	CO_2 Ether	1½ hrs. Perineal forceps.	Female	7 lbs. 3 oz.	cord five times about neck. 62 in.	none recorded	L.O.A.	None	Single large hemorrhage inferior and lateral to the disc.	Normal	Reexamined in 10 days Hemorrhage entirely cleared. No residue.	
37922 29	I	neg.	normal	24 hrs. Primary uterine inertia.	Morphia and Chloral Hydrate. CO_2 6 hrs. CO_2 Ether at delivery	14 hrs. Difficult mid forceps, with traction rods. Cervix not completely dilated.	Male	8 lbs. 3 oz.	none	well marked on right	L.O.A.	None	18 hrs. many fine circular retinal hemorrhages thruout retina. (Right)	Normal	Repeat exam. 4 days later Hemorrhages still present. Less distinct than at first exam.	
38006 36	VIII	neg.	Funnel pelvis	3 hrs. Rapid multiparous labor. Strong uterine contractions	CO_2 Ether	21 minutes normal multiparous delivery	Female	9 lbs. 4½ oz.	none	none	L.O.A.	None	Large amt. small round retinal hemorrhages. More marked on right. Some fresh. Some disappearing. (Bilateral).	Normal		
38077 42	IX	not obtained	normal	10 hrs. Poor contractions until late in 1st stage. Rheumatic heart disease.	Ether. Low forceps at full dilatation.	2 hrs. low forceps at full dilatation.	Male	5 lbs. 6 oz.	none	none noted	L.O.A.	None	(20 hrs.) small disappearing hemorrhages in right retina. (Right).	Small weak baby. Gained poorly		
38089 19	I	neg.	normal	16 hrs. normal primiparous labor.	Morphine, Scopolamine, CO_2 Ether	19 min. Primiparous low forceps	Female	7 lbs. ½ oz.	none	none	R.O.P.	Asphyxia livida. 20 min. resuscitation.	Round (fine) hemorrhages, more marked on right. (Bilateral)	Normal		
38144 21	I	neg.	normal	40 hrs. Long hard primiparous labor.	CO_2 Ether Difficult mid-forceps	4 hrs. Difficult mid-forceps	Female	8 lbs. 8 oz.	none	none	L.O.P.	Slight. Did not cry well.	Large flame shaped hemorrhage along superior lateral vessel	No evidence of spasticity or paralysis. No convulsions.	Opisthotonos. generalised convulsions for three days after delivery	

															ity especially marked on right.
38010 30	VI	neg.	normal	48 hrs. Long hard multiparous labor ending in maternal exhaustion.	CO_2 Ether	10 hrs. Hard multiparous forceps through a contraction ring. Forceps slipped from head once.(Traction rods)	Male	9 lbs. 11 oz.	none	none mentioned	R.O.A.	None	o.s. Disc obscured by hemorrhage covering it. Many retinal hemorrhages. o.d. One large flame shaped and many small round hemorrhages. (Bilateral)	Neg.	Baby had vomiting attacks for 3-4 days. Cleared up. Convalescence uneventful.
38064 22	I	not taken	normal	12½ hrs. normal primiparous labor.	CO_2 Ether	12 hrs. prior to delivery. Easy low forceps with episiotomy.	Male	8 lbs. 10½ oz.	none	not mentioned	L.O.A.	None	o.s. Flame shaped hemorrhages along superior vessel. o.d. negative (left)	Normal	
38071 24	II	neg.	normal	3½ hrs. multiparous normal in character (Twins)	CO_2 Ether	Ruptured artificially just prior to delivery. 2nd twin-internal podalic version and breech extraction.	Male	7 lbs. 8 oz.	none	none	- -	None	o.s. Many small and large round retinal hemorrhages. o.d. Negative. (Left)	Neg. Phy. Exam.	
37937 30	III	neg.	normal	2½ hrs. very active rapid labor.	none	1 hr. before delivery normal	Male	7 lbs. 15 oz.	none	none mentioned	R.O.A.	None	o.s. Five retinal hemorrhages. (Fresh) o.d. negative. (Right)	Neg. Phy. Exam.	Mother exopthalmic goitre.
						Examination twenty-four hours after delivery.									
36308 26	II	neg.	normal	8½ hrs. normal multiparous labor.	CO_2Ether	8½ hrs. Apparently easy breech delivery. Considerable suprapubic pressure on aftercoming head.	Male	7 lbs. 3½ oz.	none	Breech	L.S.A.	None	Exam.on 3rd day o.s. negative d.d. Disc outline definite choking. Massive retinal hemorrhages.(Right)	Baby died on 4th day	Autopsy. Blood clot covering rt. hemisphere Rt. tentorial tear. 1.5 cm. multiple sections of the brain obsv. No gross pathology.
36876 22	I	Pos.	Generally contracted	12 hrs. very rapid 2nd stage.	CO_2Ether	Not recorded. Normal primiparous delivery.	Male	6 lbs. 5 oz.	none	none	L.O.A.	None	3rd day. Veins congested. Large hemorrhages thru out both retinae. Both round and flame shaped.	Baby died on 3rd day.	Baby apparently normal until 3rd day when signs of intracranial tension developed. Opthalmoscopic examination at that time. Baby died shortly thereafter.

in this case. Of the nonhemorrhagic group in this series eleven per cent. showed some degree of asphyxia.

In this group of cases I was unable to find any definite relation between time of rupture of the membranes and retinal hemorrhage production.

In 6 cases membranes ruptured within ½ hour prior to delivery.
In 2 cases membranes ruptured within 1 hour prior to delivery.
In 3 cases membranes ruptured within 3 hours prior to delivery.
In 11 cases membranes ruptured over 3 hours prior to delivery.
In 2 cases unrecorded.

It appears reasonable, however, that with early rupture of the membranes, with consequent intense or unequal distribution of pressure on the head, that factors favorable to the production of retinal hemorrhage are evolved.

Delivery was accomplished in twenty of the twenty-four cases of retinal hemorrhage (83%) by operative means. Seventeen *(70%) were delivered by forceps.* This included one high forceps, six difficult mid-forceps, and ten perineal forceps deliveries. Other operative deliveries included one breech extraction, one internal podalic version and extraction, and one cesarean section. The possible relationship of retinal hemorrhage to these cases of operative delivery is very striking. By Jacob's figures forty-one per cent. of the children with retinal hemorrhage observed by him were delivered by perineal forceps. In many cases it seems probable that the pressure exerted on the child's head as it is forced through the maternal soft parts may be sufficient to produce retinal hemorrhages. If, superimposed, is the added pressure due to the thickness of the forceps blades plus pressure produced by compression of the forceps, adequate potential force for the production of these lesions. It is somewhat surprising that a higher percentage of breech extractions do not show intraocular hemorrhages. The head in these cases is unmolded and is usually rapidly delivered through the inlet and outlet of the pelvis.

Also of interest is the presence of retinal hemorrhages following delivery of the child by cesarean section. Jacobs has one such case in his series and Bedell mentions a similar instance. In this study retinal hemorrhage following cesarean section was found only once. It is a common observation, I believe, that intracranial injury is not a rare complication following abdominal delivery. The injury is due to a small uterine incision in relation to the foetal head, contraction of the uterus and to unnecessary roughness or rapidity in the extraction of the head. In many cases the operator does not flex the child's head so as to give it the advantage of the small diameters.

In seven cases with retinal hemorrhages, delivery was effected by difficult forceps, one high and six mid-plane. In all of these cases transverse arrest existed and *rotation* by the forceps was necessary. Of the seven deliveries, *five* showed *bilateral* retinal hemorrhages.

None of the infants in this series were definitely premature. The smallest weighed five and one-half pounds and the largest nine and three-quarter pounds. Of these infants thirteen were females, eleven were males. This would not confirm Stumpf's contention that one should find a greater percentage of retinal hemorrhages in males because their cephalic measurements were greater and hence the head subjected to greater pressure during labor and at birth.

Loops of cord were found about the neck in three cases (12½%). In one, two loops and in two, five loops were about the neck. In the nonhemorrhagic group nine cases (8%) had one or more loops of cord about the neck. In one case the cord was prolapsed and lay between the anterior shoulder and the symphysis with definite intra-uterine asphyxia resulting.

Observations on the foetal positions in these cases unfortunately were so incomplete that no definite relations could be established. The positions and their hemorrhage relations are shown in the table below.

TABLE 2

Position	Retinal hemorrhages		
	Right eye	Left eye	Bilateral
Left (ant. & post.)	6	5	4
Right (ant. & post.)	3	0	4
Breech (right)	1	0	0

No evidence has been adduced in this series of cases which would show that the side on which the retinal hemorrhages occur has any direct relation to areas of pressure localized in any part of the foetal head.

The ophthalmoscopic findings, especially the relation of retinal hemorrhage to intracranial lesions noted in this group will not allow of definite conclusions. In instances of definite massive intracranial hemorrhage, retinal hemorrhages are usually present, and most marked on the side of the lesion. In many cases of questionable or mild intracranial hemorrhage, however, no retinal hemorrhages can be demonstrated. In those cases of severe intracranial hemorrhage with accompanying retinal lesions the ocular hemorrhages are usually much intensified and hemorrhage into the posterior chamber has been observed.

Kearney noted that blurring of the upper and lower margins of the discs was an early indication of increased intracranial tension. Rowland noted blurring of the disc in one hundred and ninety-three (48%) of four hundred newborn infants studied. Personally, I have noted disc changes in very few of the cases in which

a clinical diagnosis of intracranial hemorrhage had been made and none in the pure retinal hemorrhage group. In some of the very severe, fatal types of intracranial hemorrhage of the newborn, there have been changes varying from a slight blurring of the disc edges to a definite choking of the discs.

It is agreed by ophthalmologists that retinal hemorrhages in the newborn are absorbed rapidly and are generally of no further importance. It is stated that many hemorrhages disappear before twenty-four hours. In the small number of our cases that have been re-examined, the round, or "blot" hemorrhages usually disappeared by three or four days, and the striate hemorrhages seven to eleven days or longer. Hemorrhages in the macular region it is generally agreed are a potential source of subsequent eye defects in the child. The hemorrhages in this region may produce these changes in one of two ways. First, by mechanically spreading the fibers of the retina, and secondly the presence of the unabsorbed clot for only a short time may interfere with the subsequent development of the retinal fibers. Lachman reported a bilateral hemorrhagic detachment of the retina in the newborn later simulating glioma.

No long or complete series of these cases has been followed up and such a step is necessary before one can actually state the effects of birth injuries on eye defects in the child. One gains by inference that retinal hemorrhages about macula are common in the newborn. These findings I have been unable to confirm, for in the small series studied only one case of hemorrhage in the macular region was noted and that in a child who died shortly after birth with a massive intracranial hemorrhage.

CONCLUSIONS

1. Operative (pelvic) delivery, especially forceps, plays a major rôle in retinal hemorrhage production.

2. Duration of labor, time of rupture of the membranes, contracted pelvis, foetal asphyxia, or syphilis have in this study shown no primary association with retinal hemorrhages of the newborn.

3. Occurrence of retinal hemorrhages in intracranial injury is not constant and the ophthalmoscopic study in these cases of no prognostic and only secondary diagnostic value.

4. Hemorrhages in the macular region of greatest importance and these uncommon.

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ADENOCARCINOMA OF THE FUNDUS OF THE UTERUS: A REPORT CONCERNING THE VAGINAL METASTASES OF THIS TUMOR*

BY JOE VINCENT MEIGS, M.D., F.A.C.S.†

INTRODUCTION

VAGINAL metastasis from adenocarcinoma of the fundus of the uterus has been recognized for a great many years, but the frequent finding of cases of this sort in the Gynecological Clinic of the Collis P. Huntington Memorial Hospital and the Gynecological section of the Tumor Clinic at the Massachusetts General Hospital suggested a search into the records to determine more about them. A knowledge of this metastatic possibility is important and lesions suggesting primary cancer of the vagina must be investigated to rule out the possibility of adenocarcinoma of the fundus of the uterus. Interest being aroused in this type of lesion, 206 cases at the Huntington Memorial Hospital from 1917 to 1928 of proven adenocarcinoma of the fundus of the uterus were investigated. The results were quite striking and seemed worthy of being reported. 25 out of the 206 cases, or 12.1% showed metastatic cancer in the vagina. This percentage of positive findings of metastatic vaginal cancer found at the Huntington Hospital is probably not a correct percentage for

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†For record and address of author see "This Week's Issue," page 186.

all cases of adenocarcinoma of the fundus of the uterus. A great many patients coming to this hospital were sent by outside physicians or hospitals because of a metastatic growth or possible recurrence to be treated by radium. Many other patients in these various clinics were probably cured and so perhaps a concentration of recurrent cases is reported in this paper. It is not an extremely rare occurrence, however, for the two cases cited at the end of this paper were seen within one year at the Massachusetts General Hospital.

HISTORY

Textbooks vary greatly in discussing this question of vaginal metastasis. In some of them it is not mentioned,[3, 4, 5] while in others mention is made of the fact that this tumor metastasizes to the vagina frequently.[2] Cullen,[7] reports the case of a nurse who came to the hospital to have a nodule removed from the vagina. Pathologic examination showed adenocarcinoma. The patient was lost sight of but returned a year later with inoperable carcinoma of the body of the uterus. He quotes one other case and later on in his book reports two cases of unquestionable transplantation into vaginal incisions made while removing cancer of the fundus by the vaginal route. The literature of the last five years is remarkably free from mention of this problem. Heyman[1] in a recent article, mentions the fact that five of his patients out of fifty-four had vaginal metastases, about 10% of the total number. This is the only mention of metastatic adenocarcinoma in the vagina found in the recent literature of uterine cancer reviewed for this article. The following is quoted from Ewing:[6] "Gravity figures in the extension of corpus carcinoma so that the vagina from the introitus to the fornix may be the seat of secondary ulcerating growths through blood and lymph vessels." Graves[2] in his textbook, writing of cancer of the endometrium, states the following: "Transplants (peritoneum, abdomen, etc.) are therefore common even before the disease is greatly advanced, and in this respect the cancerous endometrium behaves exactly as does the normal mucosa in forming endometriomata. Metastases in the ovaries are not uncommon and may be the result of transplants through the tubal lumens, or they may reach their destination through lymph channels. The tubes also may be the seat either of direct growth of the endometrial cancer or of discontinuous seed metastasis. Transplants may take place in the other direction also and become sown on the vagina, where they sometimes give the first evidence of the primary disease." In a series of 101 cases at the Free Hospital for Women in Brookline, Mass., reported in his book[2] one, or less than 1% had a vaginal metastasis.

SYMPTOMS

The symptoms of a possible extension to the vagina are discharge and bleeding recommencing after hysterectomy or radium treatment. If the metastatic nodule from adenocarcinoma of the fundus were present and ulcerated at the original operation the symptoms of bleeding and discharge would not cease. Vaginal bleeding and vaginal discharge were the two outstanding symptoms in this series of cases and all of the patients complained of either one or the other. Among the patients at the Huntington Hospital there were four who complained of pain in the back, two who complained of pain in the abdomen, pelvis and rectum and one patient had rectal bleeding. If the metastatic nodule were not ulcerated there would be no symptoms.

AGE

21 of the 25 patients were between the ages of 50 and 70, 9 being between 50 and 60 and 12 between 60 and 70. All of the patients had had the menopause. Adenocarcinoma of the fundus of the uterus is usually a post-menopausal disease and perhaps arises from an abnormal involution of the uterine mucosa.

MARITAL HISTORY

19 patients were married, 15 of them having had children, and 6 were not married. These statistics do not bear out the fact that adenocarcinoma in this region is a disease of the women who have not had children. It occurs more often in those who have been fertile. But adenocarcinoma of the fundus occurs more often than cancer of the cervix in women who have had no children.

EXAMINATION

Examination of the patients showed the uterus sometimes atrophied, sometimes of normal size and sometimes considerably larger than it should be. Rarely could the tumor be felt through the abdomen. Local vaginal examination showed a roughened, raised, or ulcerated area in the vagina distinct from the cervix and it occurred on any wall or in any region in the vagina, but more often on the anterior wall. The nodules bled easily on examination. Their size varied from a few millimeters to three or four centimeters and occasionally a widespread area of the vagina was involved. By rectum thickening could be felt in the vagina and usually there was an extension in either one or the other broad ligament regions, the extension usually taking place on the side where the vaginal metastasis was growing. In one case extension was found through into the rectum. The metastases were firmly embedded in the vaginal walls. Occasionally nodules of cancer are seen in the vagina arising from carcinoma of the cervix. These

are usually direct extensions from the cervix itself, both submucous and superficial. Their proximity to the diseased cervix and the tumor of the cervix itself tends to differentiate these nodules and those due to metastasis from adenocarcinoma of the fundus. However, certain vaginal metastatic nodules from cancer of the cervix cannot be differentiated from endometrial carcinoma metastases except by pathologic report. The records of cases at the Huntington Memorial Hospital show that in 8 patients the growth was ulcerated, in 2 the growth was not ulcerated, in 2 it was papillary and in 1 patient the growth was definitely submucous. In the other cases at the Huntington Hospital the description of the lesion did not state whether or not it was ulcerated, papillary, or submucous. Case No. 292-55, E. S., seen at the Massachusetts General Hospital was submucous.

PATHOLOGY

The pathological histology in these cases showed typical adenocarcinoma of the fundus of the uterus in the uterine curettings and whenever tissue was removed from the vaginal walls it showed the same type of tumor as was found in the uterus. Photomicrographs of one original tumor and its metastasis are shown. One adenoacanthoma of the fundus is included in this series.

TIME OF RECURRENCE

In 12 cases the nodule was noticed at the first operation and in five others the patients' symptoms never ceased and the nodule was discovered 4-8 months after the first operation, or treatment. In eight other cases the growth was not found for 8 months to 5 years after the first operation and the symptoms occurred from 2 weeks to 6 months before discovery. In these the metastasis probably took place after the first examination or operation. In some of them it certainly did.

THEORIES OF EXTENSION

Three theories to explain the method of extension of these growths have been suggested; through lymphatics or veins and by direct implantation. There are no direct lymph channels from the fundus to the vagina. The vaginal and cervical lymphatics drain together. There is a lymphatic connection between the fundus and the cervix and so a backflow drainage of lymph from the fundus to the vagina is possible. Cullen[7] believes that in the cases he cites the extension probably took place through lymphatic channels by a backflow. It is generally believed that most malignant epithelial tumors metastasize by way of the lymphatics so other theories explaining these lesions must be very convincing. Sampson[9] has found pieces of endometrium in the venous sinuses of the uterus and he believes that metastasis of endometrial tissue in this fashion is possible. Of vaginal metastases or cancer of the fundus he states the following: "I wish I knew more about the so-called 'implantations' of cancer sometimes found in the vaginal walls of patients with cancer of the body of the uterus. I have thought that some of them were implantations and others might be metastases and I would favor the venous rather than the lymphatics as metastases of chorio-epithelioma occur in this situation." So much for venous extension. The third, and apparently most popular theory, is that of direct implantation of cancer tissue flowing or discharging from the uterus into the vagina. Some endometrial implants in the vagina have been explained by the direct attaching to vaginal mucosa of pieces of menstruated endometrium. Direct implantation of tissue in the vagina does seem possible, but considering the number of menstrual periods in all women the percentage of vaginal endometriosis is extremely low, whereas the percentage of vaginal metastases from adenocarcinoma of the uterus is very high. If the implantation theory were correct the percentage of occurrence of both lesions should be nearly alike. Sampson,[9] Graves[2] and Healey[8] believe some of the lesions arise in this manner. Healey, in support of this theory, writes as follows: "On the other hand we also see frequently at the Memorial Hospital from the standpoint of implantation, superficial metastases along the vaginal wall in cases of adenocarcinoma of the corpus. These are not lymphatic extensions; they can easily be rubbed off; they are multiple implants and the diagnosis of adenocarcinoma of the corpus may be made from them." This theory is plausible for those cases where there has been trauma to the vagina and where the growth is on the posterior wall of the vagina. However, of the cases in this series, eleven metastases were on the anterior wall alone, six on the anterior and posterior walls, three on the lateral walls and only four on the posterior wall alone. These facts do not seem to uphold the implantation theory because of the probability that any growth arising from tumor cells cast off during discharge or flow would grow in the most dependent portion rather than the usual position for these lesions, half way between the cervix and the urethral orifice. It is also a fact that out of 14 patients that had had a previous hysterectomy, 5 metastases occurred one year or more after the original operation, the uterus being entirely removed. In the cases in which the original growth was treated with radium, in 1 case out of 11 the metastasis occurred after one year, one other recurring after 10 months. Certainly the 5 cases occurring one year or more after hysterectomy suggest that the implantation theory is not the probable method of extension. Metastasis to the vagina by way of the lymphatics, or as Sampson suggests, by way of the veins, seems more probable than by direct implantation. A

submucous growth in the vagina is also inconsistent with implantation.

TREATMENT AND RESULTS

The treatment in these cases was of two types—either a total hysterectomy had been done and radium used to treat the vaginal metastases or radium was used in the uterus as well as in the vaginal growth. Inasmuch as this series goes back a number of years, (1917-1928) various types of radium treatments were given. Glass and gold seeds were used in the metastases, steel needles against the metastases, and a heavy lead screened contact radiation at other times. In treating the tumor in the uterus bare steel needles or silver screened radiation were used. All of the patients had had their hysterectomy done outside of the Huntington Hospital and came to the hospital, or were sent to it, because of continued symptoms, and metastatic adenocarcinoma was found. Deep x-ray therapy played very little part in the treatment of this condition. Of the 23 patients completely followed up 18 are dead and 5 are living and well; 2 are classed as unsatisfactory because of incomplete follow-up. The 18 patients that died lived an average of 2 years after their operation and treatment. Death of the patients was due in most instances to extension of the primary growth and was not due to the vaginal metastases. 9 patients that had had a hysterectomy and were later treated by radium for the metastatic growth are dead and 9 patients that had radium in the uterine canal and also in the treatment of the metastases are dead. 78.2% of these 23 patients have died and 21.8% are living and well. Of the 5 living patients one (23-130) had deep x-ray therapy over the pelvis when the local vaginal extension was discovered. Three months later the lesion had disappeared. This case is included in this series but there is a definite possibility that the diagnosis of metastatic disease is incorrect. She did have adenocarcinoma of the fundus of the uterus and it was treated with radium, 4014 millicurie hours of steel screened radiation being placed in the uterine canal. Four months later a little bleeding was noticed and examination showed the anterior vaginal wall involved in new growth. She was given 4 high voltage x-ray treatments and one and a half years later examination showed the patient perfectly well and she has remained so to this day. Inasmuch as there is no pathologic report of the metastatic nodule it is possible that this case was not a true metastatic carcinoma.

Of the remaining 4 patients who are living and well, the first (20-507) had radium treatment alone. At the first examination in May, 1920, adenocarcinoma of the fundus was discovered with a nodule in the anterior vaginal wall. The uterus was treated by placing steel screened radiation in the utero-cervical canal for 478 millicurie hours. In June, 1920, she was given 744 more millicurie hours of steel screened radiation and in October 945 millicurie hours of silver screened radiation in the canal. The nodule noticed in May had ulcerated so in December, 1920, one 12 millicurie glass needle or seed of radium was buried in the center of the lesion and left there. At the same time 2088 millicurie hours of steel screened radiation was given in the uterine canal. In March, 1921, or three months later, the lesion in the vaginal wall had disappeared and the patient is living and well today. This successful case was treated by radium alone.

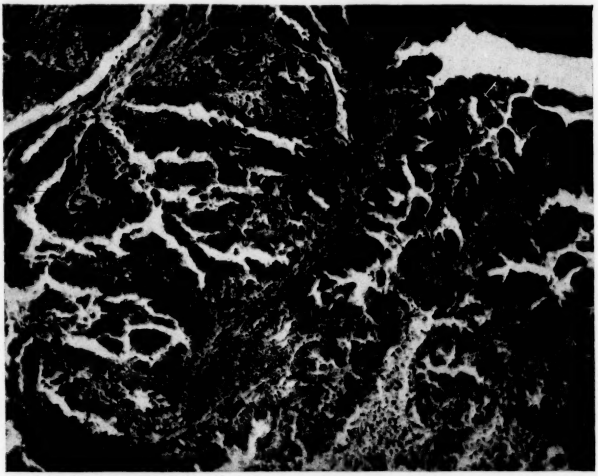
The next patient living and well (24-1058) had had a hysterectomy performed Feb. 4, 1924 for adenocarcinoma of the fundus. Her bleeding and discharge never ceased and examination at the Huntington Hospital revealed a metastasis in the right lateral and posterior aspects of the vagina close to the introitus. The area involved measured $4 \times 2 \times \frac{1}{2}$ cm. Under ether ten 1.5 millicurie glass radium seeds and two 1 millicurie glass radium seeds were placed in the tumor and its periphery, and a lead bomb 2 mm. in thickness was packed against the lesion for a total of 2760 millicurie hours. Seven months later examination showed the vaginal lesion to have entirely disappeared. In January, 1929, the patient reported her condition as excellent.

The next patient living and well (27-79) had had a complete hysterectomy in November, 1921 for adenocarcinoma of the uterus. She came to the Huntington Hospital Clinic in January, 1927, having had a bloody vaginal discharge for 6 months. The anterior vaginal wall was found infiltrated with friable papillary tissue. Four 2 millicurie gold seeds were placed in the periphery of the vaginal lesion and a lead capsule 2 mm. thick was held against the lesion for a total of 2643 millicurie hours. 3 months later the vaginal lesion had entirely disappeared and there was no sign of disease on March 20, 1929.

The last patient living and well (28-808) had had both tubes and ovaries removed and the uterus opened (whether removed or not is not clear). The diagnosis was adenocarcinoma of the uterus. One year and eight months later she reported that she had been flowing for one month. Examination showed a vaginal metastasis which was cauterized in another hospital. She was then sent to the Huntington Hospital for radium and on June 6, 1928, 2961 millicurie hours were given against the anterior vaginal wall in a lead capsule. In February, 1929, this patient was free from signs of vaginal growth.

Therefore, of the patients living and well in this series, three had had hysterectomies and were given radium in the metastatic nodules, while one had radium in the canal with radium in the metastasis and one had radium and x-ray

Photomicrographs of pathological specimens 20-2013 and 20-2015 showing adenocarcinoma in the fundus of the uterus and also adenocarcinoma in a metastatic nodule in the vagina. Collis P. Huntington Memorial Hospital.



for the metastasis. This is slightly in favor of the combination of hysterectomy and radium as the proper treatment.

An analysis of the results of treatment has been made to see if there is any suggestion as to the type of radium treatment that is preferable to all others. In 16 cases the results of the treatment of the metastases are known. In 10 cases the results were favorable in that the nodule was destroyed. However, in but five cases did the patients live. In 6 cases the results were not good and the patients eventually succumbed. No definite method of treatment can be picked out of the 8 different methods but a preferential treatment can be suggested in the use of 2500 millicurie hours of gamma (lead screened) radiation against the lesion and in the use of seeds directly in and about the lesion. The seeds should be placed approximately one cubic centimeter apart so that all the local growth is within the field of radiation. A combination of these two methods, gold or glass seeds in the periphery of the lesion and in its substance, spaced 1 cm. apart, and a lead bomb of 2 mm. of lead held against the lesion for a dose of about 2500 millicurie hours is preferred as the method of treatment of the metastasis at the present time.

No consideration has been given to excision of the nodule as a method of treatment because no case has been treated in this fashion at the Huntington Hospital. It is therefore not possible to make any statement or draw any conclusions regarding excision.

It is probably true that whenever hysterectomy can be done with a reasonable prospect of completely eliminating the disease it should be done if the local vaginal metastasis can at the same time be considered treatable with radium with a reasonable prospect for complete destruction.

If the uterine growth is fixed or in any way suggestive of poor operability it should be treated with radium in the uterine canal no matter what the condition of the vaginal growth. Also it would not seem wise to contemplate a total hysterectomy for cancer of the fundus of the uterus if there is a very extensive vaginal metastasis without reasonable prospect of complete destruction with radium.

CASES

Two cases seen within a year at the Massachusetts General Hospital and one seen at the Huntington Hospital are worth recording more in detail.

The first case (E. S. 292055) seen in June, 1928, was a woman 54 years old, who complained of a lump in her vagina that pressed upon her urethra while in sitting position. This pressure caused the patient a great deal of discomfort. She had had the menopause at 38 years of age and had had no bleeding or discharge since that time. Examination showed two tumors in the recto-vaginal septum which were very hard and not ulcerated or tender. The cervix could be felt easily, small and atrophied, high in the vagina away from the tumors and not involved in any new growth. By rectum the lesions seemed to be more in the vagina than in the rectum. Various diagnoses were made by different surgeons, from fibromata of the vagina, adenomyomata of the recto-vaginal septum, to primary cancer of the vagina. Under ether the same findings were present, but on passing a uterine probe into the uterus bleeding was noticed at once on withdrawal of the probe. This positive Clark's test at once suggested the diagnosis of adenocarcinoma of the fundus of the uterus and the pathologic report showed adenocarcinoma in the uterus and the vagina. The second case, (W. S. 292315) seen in July, 1928, at the Massachusetts General Hospital, age 64 years, was a patient complaining of hemorrhage from the vagina and failing strength. On examination a hard nodule was found on the anterior vaginal wall and another on the right side of the vagina. The cervix was hard and nodular but no tumor could be found in it. The uterus was normal in size and freely movable. In this case a diagnosis of cancer of the fundus of the uterus with metastatic cancer of the vagina was made. Ether examination showed adenocarcinoma in the uterus. She was given radium treatment because surgery seemed unwise in view of the vaginal metastases. The third case, (No. 22-465) seen at the Huntington Hospital in April 1922, was a patient who had been treated with radium in an outside hospital for primary cancer of the vagina. No success attended the treatment and the patient was sent to the Huntington Hospital for more radium. Curettage revealed adenocarcinoma of the fundus and the nodule in the vagina was regarded as a metastatic nodule. A knowledge of this metastatic phenomenon would have pointed out the proper procedure at once. In lesions suggesting primary carcinoma of the vagina a metastatic nodule from the fundus of the uterus must be ruled out.

CONCLUSIONS

(1) Metastatic adenocarcinoma in the vagina from adenocarcinoma of the fundus of the uterus is not an uncommon lesion.

(2) 12.1% of all cases of adenocarcinoma of the fundus of the uterus seen at the Collis P. Huntington Memorial Hospital had vaginal metastases.

(3) Cancer in the vagina should not be regarded as primary there until the uterus has been investigated.

(4) Metastases probably take place by way of the lymphatics or possibly by venous channels.

(5) Direct implantation is less probable.

(6) Hysterectomy is to be preferred when the vaginal metastasis seems treatable and the uterine tumor operable.

(7) Radium should be used in the uterine canal and in the metastasis if either the original tumor or the local metastasis is considered inoperable or untreatable.

(8) Infiltration of the metastasis with gold or glass seeds and surface application with about 2500 millicurie hours of lead screened radiation, is the treatment preferred in dealing with the local vaginal metastases.

(9) In 10 out of 16 cases of vaginal metastases radium treatment caused a disappearance of the growth; in 6 cases the growth was not favorably influenced by treatment with radium.

(10) Four proved cases out of twenty-four who had had adenocarcinoma of the fundus and metastatic nodules of cancer in the vagina are alive and well; one patient is alive 9 years, one 7 years, one 5 years and one 7 months after treatment. One other patient treated with deep x-ray therapy is alive and well after 5 years, but this case is not absolutely conclusive.

(11) The necessity of careful periodic vaginal examination following either hysterectomy or radium is evident from this study.

Note: The author wishes to thank Dr. G. A. Leland, Jr., for his kindly criticisms and helpful suggestions.

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THE FUNDAMENTAL NATURE OF RELATIVE STERILITY

BY SAMUEL R. MEAKER, M.D., F.A.C.S.*

STERILITY is best regarded as inability to initiate the reproductive process. This definition is in one way narrow, and in another broadly inclusive.

It is narrow in the sense that it refers only to the failure of conception, and does not cover the numerous accidents which may prevent the fertilized ovum from completing a normal career. Ectopic implantation, imperfect nidation, intrauterine death, and premature expulsion of the ovum are all important types of failure of the reproductive mechanism. They are not sterility, however, as here defined; both in theory and in practice they can most advantageously be treated as separate, though allied, problems.

In another sense my definition has a broad application. It may be used with reference to one individual of either sex, and equally well to a mating of two individuals. It covers the sterilities due to social circumstance, as well as those due to physical incapacity. It includes the special clinical meaning of sterility, which is inability to initiate the reproductive process on the part of a couple desiring and attempting to reproduce.

There is some practical importance in distinguishing, so far as possible, between sterility which is absolute, and sterility which is relative only.

ABSOLUTE STERILITY

An individual or a mating is absolutely sterile if the initiation of the reproductive process is definitely impossible. This situation results from conditions of two general sorts: those precluding entirely the production of gametes, and those entirely preventing the access of the male gamete to the female.

*For record and address of author see "This Week's Issue," page 186.

Absolute sterility may be permanent or temporary. It is permanent if the inhibiting conditions are not remediable. Theoretically, the only cases to be so classified are those in which the gonads are absent or atrophied.

It should be regarded as temporary if by any change or circumstances, or any conceivable achievement of nature or art, the inhibiting conditions can be removed. Nature alone sometimes accomplishes surprising results along these lines. A woman whose tubes have just been ligated is beyond a doubt absolutely sterile; yet in such a case the vis medicatrix naturae has often operated to render the disability temporary only. Beyond a doubt a woman whose hypoplastic ovaries have never ovulated is absolutely sterile; yet a late spontaneous awakening of the oögenetic function has many times occurred. Occasionally absolute sterility is remediable by art; the best examples are the cases in which a complete blockade is removed by salpingostomy or epididymovasostomy.

RELATIVE STERILITY

In order for conception to occur, certain physiologic conditions ordinarily require to be fulfilled. These are, in summary, as follows: the testicles must produce normal spermatozoa; the spermatozoa must be transmissible without damage through unobstructed male genital passages; spermatozoa must be safely delivered to and received by the cervix; the endocervical secretions must be favorable to spermatozoa; the uterus must allow the ascent of spermatozoa from the os internum to the ostia uterina of the tubes; the tubes must allow the ascent of spermatozoa and the descent of ova; and the ovaries must produce normal ova.

Absolute fertility means the perfect fulfillment of these seven requisites, and is largely a

theoretical concept so far as human beings are concerned. From the biological viewpoint we are overcivilized and overdomesticated, and in consequence even the most prolific members of the human race are poorer breeders, so to speak, than most of the lower animals.

Between absolute fertility, which is practically non-existent, and absolute sterility, which exists in only a minority of those who desire and attempt to reproduce, there are all grades and degrees of relative fertility-sterility. The upper limit of the scale approaches absolute fertility; the lower limit is separated from temporary absolute sterility by a very narrow dividing line, sometimes clinically indistinguishable.

In relative sterility the initiation of the reproductve process, while not flatly impossible, is to some extent impeded or made difficult. Gametes are produced, but they may be subnormal in number or quality. The access of the male gamete to the female is not entirely prevented, but obstacles of one sort or another may be placed in the way. Thus the capacity for reproduction, still actually present, is diminished to a degree which varies within wide limits in different cases, and within narrower limits in the same case at different times.

CLINICAL ASPECTS OF RELATIVE STERILITY

Incidence. If either partner exhibits absolute sterility, it follows that the mating is absolutely sterile. This situation obtains in somewhat less than twenty-five per cent. of the cases that present themselves to the clinician. Suitable treatment will transfer a certain number of such matings to the relatively sterile group.

In at least seventy-five per cent. of clinical cases the sterility is, ab initio, relative only. Thus relative sterility is clearly the more important problem on the ground of incidence. It is also the more practical problem on the ground of the results which may reasonably be expected from treatment.

Plurality of causative factors. In the past it has been generally assumed that sterility is due to some single causative factor in each particular case. Accordingly the usual investigation of a case, starting with examination of the female pelvis, progressed only to the point where the first real or fancied abnormality was discovered. The normality of all other items was then taken for granted; investigation ceased, and treatment began.

For the past two years I have had the opportunity of handling sterility on the basis of an organized group-study, in collaboration with Drs. C. H. Lawrence, A. W. Rowe, and S. N. Vose. Our routine requires a full investigation of both husband and wife, and includes not only a detailed study of the genital organs but also an elaborate survey of the constitutional state of each patient.

We find that the complete investigation of a sterile couple commonly demonstrates, not some single condition responsible for infertility, but several such conditions. No case in our series has shown less than two causative factors; some have shown as many as seven; the average is 4.5 factors per case.

It appears, therefore, that sterility is ordinarily the result of a summation of causes, of which each one lowers fertility to some extent, and all together depress fertility below the threshold of conception. A single causative factor, unless it be absolute, generally does not result in prolonged sterility. Every would-be contraceptionist knows, to his sorrow, that a single impediment to fertility is often overcome by nature.

Mechanism of cure. The ideal treatment of sterility would eliminate completely every aetiologic factor, thus bringing about a condition of absolute fertility. Practically this cannot be done. The aim of treatment, however, should be to attack all of the demonstrated factors and to reduce each one as near to the vanishing point as is possible. Since sterility is due to a summation or totality of several causes, the likelihood of cure is proportionate to the reduction which can be effected in the aetiologic sum-total. In occasional cases the treatment of one factor may remove a sufficient part of the causative syndrome so that fertility rises above the threshold of conception. This result is far more likely to be achieved if the inhibiting sum-total is broken down on several sides by the simultaneous treatment of all of several factors.

In this connection it should be emphasized that constitutional states depressing the fertility of the gametes comprise about one-third of the total of aetiologic factors in sterility. The investigation and treatment of these conditions have been largely neglected. I recently heard expressed by two leading gynecologists the opinion that cures of sterility are rarely to be expected unless the female pelvic organs present abnormalities susceptible of correction by surgery. In my opinion the place of properly chosen constitutional treatment in sterility is fully as important as the place of surgical therapeutics. Some of our most gratifying results have been accomplished by the correction of constitutional faults.

Distribution of responsibility between male and female. The extent of male responsibility in sterility has been widely misunderstood. Only a few years ago the reproach of barrenness rested entirely on the wife, and the husband was considered to be guiltless. Noegerrath went to the opposite extreme, and estimated male responsibility at ninety per cent.; his figure was based upon the medical fallacy of supposing gonorrhea to be the commonest cause of sterility, coupled with the ethical fallacy of assuming that the husband is to blame for all familial infections. Most modern writers state that the

male is responsible in forty to fifty per cent. of sterile marriages.

All such estimates are essentially fallacious, for they depend upon the idea that sterility in each case is the result of some single causative factor, which can be definitely allocated to one or the other partner. Since actually several factors are operative in the average case, the distribution of responsibility becomes a much more complex problem.

Our experience indicates that about one-third of all causative factors are on the male side, and two-thirds on the female. Thus the total responsibility of husbands is less than that of their wives; nevertheless, it is comparatively uncommon to find a case in which the male is entirely guiltless. Only one such occurred in our first series of twenty-five cases; in a larger series of forty-seven we found only three men who did not show some evidence of infertility.

So it becomes obvious that the responsibility is ordinarily divided. The use of such phrases as "male sterility" or "sterility in women" indicates a fundamental misconception of the whole problem. That there are sterile men and sterile women no one doubts. In more than ninety per cent. of cases, however, sterility is an affair not of the man alone or of the woman alone, but of the mating.

Evaluation of fertility in one partner. The diagnostic study of sterility must always be a two-patient problem, if the aim is to reach an accurate conclusion upon which treatment may rationally be based. Occasionally, however, a single individual contemplating marriage, or one member of a married pair, desires an opinion upon his or her presumable fertility. Such an opinion may be given within certain limits, which should be clearly defined both in the mind of the physician and in his presentation to patients.

If the investigation of the patient discloses no abnormality, it is usually best to state that he or she, mated with a partner of average fertility, will probably be able to reproduce, or else simply to say that there is no apparent obstacle to fertility. Sweeping statements should be avoided; the most comprehensive investigation will rarely justify expressing an opinion that the patient is "absolutely normal" or "in perfect condition" from the viewpoint of reproduction. One can never justifiably assert without qualification that an individual or a mating will prove to be fertile, since even the best modern methods of study do not permit an entirely accurate evaluation of the reproductive capacity.

When abnormalities are discovered, it becomes necessary to estimate their influence on the fertility of the individual, together with the likelihood of their being naturally overcome by high fertility in the other partner, and the possibilities of eliminating them by treatment. Here again unguarded statements are better avoided. It is inadvisable to say flatly that a patient can never have children. For one thing, such a pronouncement may easily lead to psychic disturbance, or to social disaster. For another, there is always a chance that the opinion of the physician may be proved fallacious by the most convincing possible evidence. Within the past year I have seen a pregnancy following alleged bilateral oöphorectomy, a pregnancy in a woman whose pelvic organs were extensively damaged by inflammatory disease, and a pregnancy occurring after nineteen years of sterile marriage in a patient with conspicuous hypoplasia of the uterus. Arthur Giles says: "It is unsafe to state, on the ground of the condition of a woman's pelvic organs, that she cannot become pregnant, unless you have yourself removed her uterus, ovaries, and tubes, and even then it is wiser to say that it is improbable."

SUMMARY

1. Sterility is relative, and not absolute, in about seventy-five per cent. of clinical cases.

2. In practically every case the cause of sterility is a sum-total of multiple factors, rather than a single abnormality.

3. The responsibility is to some extent divided between the male and the female in at least ninety per cent. of cases.

4. Intelligent management of sterility requires in every case a complete study of both partners, dealing with constitutional as well as local conditions.

SURGICAL DIVERTICULITIS

BY HORATIO ROGERS, M.D.,* AND RICHARD H. MILLER, M.D., F.A.C.S.*

THE phrase "surgical diverticulitis" is here used to indicate a lesion of the large intestine causing inflammatory or obstructive symptoms, and representing a late stage in the development of diverticula in the intestinal wall.

Authorities differ as to the exact etiology of the original condition, giving weight in varying degrees to such factors as pressure, congenital weakness, infection, and mechanical irritation. It is agreed, however, that a hernial protrusion of mucosa and submucosa takes place through the muscle wall at various points of weakness, oftenest in the sigmoid. The term "prediverticular phase" has been used to describe the earliest x-ray appearance of this process, and "diverticulosis" for a later stage, when definite diverticula are demonstrable, but without symptoms. The word "diverticulitis" is reserved for

*For record and address of author see "This Week's Issue," page 186.

the condition which develops as a result of inspissation of fecal material in a diverticulum, producing pressure, inflammation, and infection.

Occasionally this is followed by spontaneous resolution. More often there is fibrosis, suppuration or gangrene, with perforation and abscess formation or general peritonitis. Intestinal obstruction may result from adhesions between loops of intestine, or it may be directly caused by the inflammatory mass. Vesico-colic fistula is one of the rarer complications.

There is no outstanding predisposing factor, although some writers feel that obesity and constipation are important ones. Males are much more often affected than females, the proportion varying from 2:1 to 3:1. There is general agreement on the age at which diverticulitis is found, the average being over fifty. It occurs most often in the sigmoid; twenty-one out of twenty-five times in the series reported below.

The relative frequency of diverticulitis is suggested by a recent report of Spriggs and Marxer in the London *Lancet*[7]. Out of one thousand consecutive x-ray studies they found "some stage of diverticulosis" in one hundred individuals, and "surgical diverticulitis" in five.

The surgical records of the Massachusetts General Hospital yield twenty-five cases in which surgical diverticulitis was found at operation. The correctness of the operative diagnosis was confirmed by pathological examination in ten. The other fifteen could not be proved, but no doubt was expressed by the operator of the nature of the condition found. All cases in which the findings were at all doubtful have been rejected.

Although the presence of diverticula in their early phases is readily discovered by x-ray examination, the late phase of the disease, surgical diverticulitis, offers peculiar diagnostic difficulties. These cases usually appear as emergencies, either with inflammatory or obstructive symptoms, and even if x-ray examination is then feasible, its results are apt to be misleading. Often the diagnosis must be deferred until the abdomen is opened, and even then the condition is frequently mistaken for something else.

In the present series of twenty-five cases a correct preoperative diagnosis of diverticulitis was made five times, twice with the help of the x-ray, and three times without. In fourteen cases the diagnosis of diverticulitis was not made before operation, the condition being described symptomatically as intestinal obstruction, fecal fistula, etc. The remaining eleven cases were wrongly diagnosed, (four with the help of x-ray examination) as follows—cancer three; acute appendicitis two; acute cholecystitis; tubo-ovarian abscess; ovarian cyst; fibroids with pelvic inflammation; osteomyelitis of pelvic bones; and strangulated hernia.

It will be noted that a diagnosis of cancer was made three times. In three other cases cancer was found at operation together with diverticulitis. When we consider that the age incidence of both conditions is the same, it is not surprising that they should be so often confused, nor must the possibility of the co-existence of cancer and diverticulitis be overlooked. Of fifteen cases operated at the Mayo Clinic[1] before 1911, four proved to be cancer developing in diverticulitis, and it is interesting to note that only one of the fifteen was correctly diagnosed before operation. Lockhart-Mummery[8], in 1927, had seen three cases develop cancer after colostomy for diverticulitis; and Fifield[6], in 1927, quoted seven cases from the Mayo Clinic developing in diverticulitis. Rowlands[8] confesses to having done four resections of diverticulitis under the impression that he was doing them for cancer, and the writers have twice seen specimens passed around the operating room as cancer, which under the microscope proved to be diverticulitis alone.

In a discussion of the differential diagnosis of diverticulitis, Fifield[6] gives a prominent place to cancer, tuberculosis, actinomycosis, and adnexal disease. Included in the present series is a case of co-existent tuberculosis and divertículitis of the cecum, and a case of diverticulitis of the hepatic flexure infected with actinomycosis. Fifield also calls attention to the possibility of confusing vesico—colic fistula (from diverticulitis), with cancer of the bladder.

Many of the conditions mentioned may be so closely simulated by diverticulitis that in the time available for study an error is unavoidable. In most of them, however, the error will promptly be exposed and the true condition recognized at operation. This is less true where the diagnosis lies between diverticulitis and cancer, and the resultant error in treatment is apt to be more serious. That is, a radical resection may be done unnecessarily, or the chance of resecting an operable cancer may be lost.

In the preoperative diagnosis, therefore, certain differential points should be elicited. One is the length of the history. A long history of periodic attacks of constipation and left lower quadrant pain, especially if accompanied by fever, would suggest diverticulitis rather than cancer, though it would not exclude the possibility of both together. Blood in the stools is more characteristic of cancer, whereas leucocytosis more often accompanies diverticulitis. The patient's general state of nutrition taken with the duration of symptoms may also offer a clue, a good state of nutrition over a long period of time favoring diverticulitis rather than cancer. The x-ray examination may be helpful in demonstrating diverticula, but it cannot exclude co-existent cancer—or always tell whether a diffuse lesion is cancer or diverticulitis.

Of the twenty-five patients operated in the present series, seventeen survived long enough

to be discharged from the hospital, and eight died in the hospital. Primary resection was undertaken five times, resulting in two deaths; one patient discharged with two fecal fistulae; and two patients discharged relieved. Simple drainage of an abscess or inflammatory mass was done eleven times with three deaths. The other procedures were exploratory laparotomy, two; closure of perforation with drainage, one; closure of vesico-colic fistula with drainage, one; enterostomy, three; excision of rectum for cancer of rectum and diverticulitis of sigmoid, one; and excision of diverticulum, one.

Spriggs[4] feels that the development of surgical diverticulitis may be prevented by appropriate medical treatment directed against fecal stasis and foci of infection. This paper, however, is chiefly concerned with those cases in which surgical diverticulitis has already developed. They fall into three main symptom groups:—acute inflammatory, obstructive, and chronic.

1. The acute inflammatory group includes perforation, general peritonitis, acute abscess formation, etc., and presents much the same operative problem as does acute appendicitis.

2. The obstruction group comprises those cases in which intestinal obstruction is the presenting symptom.

3. The chronic group includes such complications as vesico-colic fistula and low-grade chronic inflammation, with or without partial intestinal obstruction.

In the acute inflammatory group the circumstances will usually admit of no choice of procedures. Perforations must be repaired, abscesses drained, and peritonitis dealt with.

It is chiefly in the other two groups that a choice of operative procedures will be offered. Resection may be obviously out of the question, and simple colostomy may be indicated to relieve obstruction. A short-circuiting operation may occasionally be feasible, but more often the location of the disease makes that impossible. In certain cases resection of the diseased bowel will be mechanically possible. The mortality of left colon resection, however, is notoriously high. Radical resection must always be confined to those patients who are good surgical risks, and where the diseased area, in addition to being well defined and readily accessible, does not involve the neighboring structures. Gordon-Watson[8] states that primary one-stage resection is seldom possible and very seldom advisable.

All things considered, simple colostomy would seem to be the wisest choice. It can be done with a minimum of risk, it relieves the immediate symptoms, and it gives the inflammatory process a chance to subside. The process may subside so completely that the lumen of the bowel is re-established and the colostomy can be closed[6]. If resection should still seem desirable, it may be done several months later under optimum conditions[6, 8].

The above procedure would, of course, be disastrous if it resulted in leaving behind a resectable cancer. There can be no doubt that diverticulitis and cancer have frequently been confused at operation, and that they may coexist in the same lesion has been demonstrated. It would therefore seem apparent that an essential part of any operation for diverticulitis should be the determination of the presence or absence of malignancy, and that tissue should be taken for pathological examination whenever feasible.

SUMMARY

1). The diagnosis of surgical diverticulitis may be considered to have two phases,—preoperative and operative, each presenting certain difficulties.

2). Before operation the differential diagnosis may embrace a variety of lesions. In the time available for study the surgeon may be unable to do more than recognize the indications for operation.

3). Out of twenty-five cases of diverticulitis operated at the Massachusetts General Hospital the correct preoperative diagnosis of diverticulitis was made five times.

4). Diverticulitis and cancer of the large intestine are easily confused, both before operation and during operation.

5). In the present series cancer and diverticulitis occurred together three times, diverticulitis was wrongly diagnosed cancer three times, and in one case a cancer of the sigmoid was found at autopsy after having been diagnosed diverticulitis at operation.

6). The age of the patients, the location of the lesions, and the extent of the disease combine to make the operative mortality high.

7). The average age in this series was fifty-two.

8). The sigmoid was involved twenty-one times in twenty-five cases.

9). Of twenty-five patients subjected to various operative procedures eight died in the hospital.

10). The mortality of primary one-stage resection of the left colon is notoriously high.

11). Colostomy above an area of diverticulitis makes subsequent resection easier. It may render resection unnecessary.

12). Delay in the presence of resectable cancer may be indicated by the circumstances, but ignorance of the cancer's presence should not be one of them.

13). No operation for diverticulitis can be considered to have fulfilled its purpose unless it results in the demonstration or exclusion of the presence of cancer.

14). Biopsy, when feasible, is an essential part of any preliminary operation for diverticulitis.

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REPORT OF THE GRADUATE COURSE IN CANCER

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ROBERT B. GREENOUGH, M.D., F.A.C.S.* †

TWO hundred and eleven physicians and 199 dentists attended the Graduate Course in Cancer, April 23 through 25, 1929. This course was offered by the Massachusetts Medical Society to all the physicians in the State, and the State Department of Public Health and the American Society for the Contral of Cancer co-öperated. The first day all dentists were invited to the clinics on mouth cancer and in the afternoon of that day the Harvard and Tufts Dental Schools and the Forsyth Dental Infirmary gave special clinics also. A total of 15 clinics were held in nine different hospitals. Three clinies were going on at a time, dealing with the same general phase of the subject. Admission was by ticket in an effort to control numbers though there was some diffieulty in balancing supply and demand. A small fee was charged for the course.

The first morning the Boston Dispensary gave a general clinic, while the Massachusetts General and the Palmer Memorial Hospitals showed skin and mouth cancer. That afternoon the Huntington Memorial and the Boston City Hospitals showed bone sarcoma, lympho-blastoma and cancer of the nose and throat, the Children's Hospital presented malignancy in children, and the Forsyth Dental Infirmary gave cancer and precancerous lesions of the oral cavity. The second morning cancer of the stomach, intestine, rectum and genito-urinary system was presented at the Massachusetts General, Palmer Memorial and the Peter Bent Brigham Hospitals. In the afternoon general clinies were held at the Massachusetts Homeopathic, Carney, and Pondville Hospitals. The third morning uterine and breast cancer was given at the Free Hospital for Women, the Massachusetts General Hospital, and the Huntington Memorial Hospital.

The first evening there was a dinner presided over by the President of the Medical Society. Governor Allen, the President of the Dental Society, and others spoke. To this dinner the nurses and social workers, as well as the doctors and dentists, were invited so that it represented a gathering of the four professions on which cancer control work must depend. In addition, the local and state groups who have been active in cancer education work for the last two years were invited. Five hundred attended the dinner. On the second evening all were invited to attend the meeting of the Suffolk District Medical Society at which Dr. Henry K. Pancoast of Philadelphia spoke on "Radiation in Cancer". On the last day there was a general luncheon meeting with addresses, lantern slides by Dr. J. M. Wainwright of Scranton, Pennsylvania, and the Canti film. One hundred and fifty-six attended.

The 211 doctors attending the course were divided as to type of practice from the American Medical Association Directory as follows: General practitioners, 130 (these were the men for whom the course was principally planned); surgeons, 36; obstetries and gynecology, 10; pediatries and internal medicine, 5 each; roentgenology and nose and throat, 4 each; public health and urology, 3 each; and 1 each for seven other specialities.

The course was planned by the committee of nineteen, representing the Medical Society, co-öperating agencies and hospitals, and the various branches of the subject. In order that the committee might get some idea of the effectiveness of the course, questionnaires were sent to all who attended and the answers are here summarized. Eighty-four physicians and seventy-two dentists returned the questionnaires.

In answer to the question "What part of the course was most valuable?" 73 per cent. of the doctors and 99 per cent. of the dentists considered the clinics best. This was fortunate since the clinics comprised 85 per cent. of the course.

In answer to the question "Were there too many clinics?" 75 per cent. of the doctors and 85 per cent. of the dentists said "No".

The third question dealt with the general meetings. Twenty-one per cent. of the doctors and 33 per cent. of the dentists felt there should be more general meetings.

In reply to the question "Was any particular phase of the subject neglected?" 18 per cent. of the doctors and dentists answered "Yes". Various subjects were listed, the most important

*Acting for the Executive Committee on Graduate Course in Cancer, the other members of which were Doctors Alexander Begg, J. M. Birnie, Walter P. Bowers, Walter Burrage, Ernest M. Daland, William P. Graves, Daniel Fiske Jones, Mary R. Lakeman, George A. Leland, Fred B. Lund, Frank R. Ober, Stephen Rushmore, William M. Shedden, Channing C. Simmons, Irving J. Walker, and Shields Warren.

†For record and address of author see "This Week's Issue," page 186.

being the lack of clinical cases of early cancer. It should be pointed out that treatment of these cases cannot be delayed for any course so that the number available at any one time is entirely a matter of chance. Such physicians might well drop in from time to time to any of ten cancer clinics to which they are always welcome. Almost at each session such early cases are found.

Question five requested information as to whether another course should be given and if so what the duration should be. Eighty-five per cent. of the doctors and 80 per cent. of the dentists felt that another course should be given. Most of the doctors favored the three-day course and the majority of dentists the one-day course. Four courageous doctors and four dentists requested a one-week course.

In reply to the inquiry as to what other subjects might be given in a similar course, the subject of venereal diseases led with both doctors and dentists, with a little over a third of the doctors asking for this subject and about half of the dentists. Heart disease was the second choice of the physicians, and diseases and infections of the mouth the second choice of the dentists. Tuberculosis followed a close third for both doctors and dentists.

The principal criticism of the course was the crowded condition of the clinics. Both doctors and dentists felt that a more restricted attendance at clinics would be desirable. It is, of course, a very difficult matter to adjust equitably in advance the supply and the demand.

CONCLUSIONS

The response by busy practitioners of medicine and dentistry to the opportunities offered in the Cancer Course was most gratifying. We are particularly pleased at the attendance by 130 general practitioners for whom the course was particularly planned and on whom the early recognition of cancer and prompt guidance to adequate therapy must in the largest measure depend.

With some modification and extension we are considering a repetition of the course next year.

We desire to express our appreciation to the hospitals and to the clinicians who in the clinics carried the brunt of the burden of the Course.

CISTERNAL OR SUBOCCIPITAL PUNCTURE

A Report of 2019 Punctures*

BY HARRY C. SAUNDERS, M.D.,† AND TIMOTHY J. RIORDAN, M.D.†

THE use of cisternal puncture has a wide range. It can be employed to advantage by the neurologist, the psychiatrist, the syphilologist, the pediatrician and the surgeon. It is from the viewpoint of the syphilologist that this report is made. The purpose is to add to the evidence already given by Ayer[1], Ebaugh[2], Benedek and Thurzo[3], Eskuchen[4], Memmesheimer[5], Nonne[6], and others as to the safety of the procedure and as to the feasibility of using it as a routine measure in the management of syphilis.

In the past ten years, numerous writers, reporting more than 10,000 punctures, have, with one exception (Woelk[7]), agreed that in the hands of a skilled operator, this is not a dangerous procedure. It is the opinion of all, however, that in untrained hands, there is great danger of doing serious damage. There have been seven deaths reported (Table I), and two have been referred to in the literature. Memmesheimer[8] stated that Eskuchen had heard of one fatality, and Berger and Grossberg[9] also mentioned a death resulting from the piercing of the medulla by an inexperienced operator.

Injury to the medulla with recovery has been reported nine times. Kroiss and Dielmann[10] mentioned four such cases. Ayer[1] cited two and Pfister[11] one instance in which breathing stopped for a few minutes. Eskuchen[4] recorded one case in which there was a loss of consciousness. Stahl[12] reported another in which there was nystagmus, vomiting, and facial paralysis for twenty-four hours.

We have had one accident. The patient complained of numbness on one side of the body which persisted for one week. Recovery was complete. On several occasions, there has been pain on the top of the head, side of the face, or tip of the tongue. Four times, there has been a sensation like an electric shock over the whole body when the dura was pierced.

In this series the Eskuchen technique was followed with the patient lying on the right side. No anaesthetic or sedative was used. All of the syphilitie patients, with the exception of those upon whom a double puncture was performed were ambulatory.

There was a total of 2019 punctures made on 539 patients, the greatest number on one patient being 32 (Table II).

With the exception of 4 cases of epidemic meningitis and 1 of hydrocephalus, all the patients had or were suspected of having syphilis.

Of the total number of patients, 535 were adults, 4 were children, 465 were males, and 74 were females.

Of the total number of punctures, 805 were made for routine fluid tests; 847 were made for

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Table I. Reported Deaths

	Age Sex	Diagnosis	Cause
Norne (6)	M 79	Arterio-Sclerosis	An anomaly of the vertebral artery.
Janossy (13)	M 14	Tuberculous Meningitis	Died 5 hours after puncture from hemorrhage. There was a question whether it was the result of injury from needle or from erosion to vessel from disease.
Curschmann (14)	F	Epidemic Meningitis	Hemorrhage from vessel held in path of needle by adhesions.
		Tumor of posterior cranial fossa.	Respiratory paralysis.
Reute (15)	M 14	Hydrocephalus	Hemorrhage from vessel in medulla which was pushed on to the needle by pressure of the fluid in front when the fluid was withdrawn from the cistern.
Pineas (16)	M 56	Cerebral Syphilis	Hemorrhage from injury to vessel of pia.
Steindl (17)	F 48	Brain tumor	Hemorrhage following injury to vessel in carcinomatous growth.

Table II.

Report of Punctures.

	Number of Punctures.	Number of Patients	Greatest No. in 1 Patient	Depth in cm.			In Syphilis.				Hydroceph.	Meningitis.
				Greatest	Least	Average	Tests	Drainage	With L. Puncture	Fluid Study		
Memmesheimer, A.M.	2	2	1	-	-	-	2	-	-	-	-	-
Combes, F. C.	106	82	7	7	3	4-5	106	-	-	-	-	-
Gillepsie, E	12	12	1	-	-	-	12	-	-	-	-	-
Martin, C. H.	35	22	3	-	-	-	18	17	-	-	-	-
Riordan, T. J.	343	56	20	6.5	3	4-5	47	266	-	24	-	3
Skeer, J	12	10	2	5.6	3.2	4-5	9	3	-	-	-	-
Spiegel, L	64	64	1	-	-	-	47	-	17	-	-	-
Saunders, H. C.	1445	291	32	8	2.8	4-5	564	561	27	292	2	2
Total	2019	539	32	8	2.8	4-5	805	847	44[a]	316	2	5

a. Of these, 41 were reported by Saunders and Spiegel (18).

drainage following intravenous therapy; 44 were made in conjunction with lumbar puncture for comparative study of the fluids; 316 were for special fluid study; 4 were made for the introduction of antimeningococcic serum, and one for the introduction of a dye to determine the presence of a block.

Twice the operation was interrupted, once because of the lack of co-öperation on the part of the patient, once because at the depth of 8 cm. fluid was not reached (2 attempts).

Ten times the fluid was blood tinged and several times a vein was pierced before the dura was reached. This blood was quickly flushed

from the needle by the flow of the fluid and did not spoil it for testing. Our accident and nearly all of the cases in which a blood-tinged fluid was obtained and in which root pain occurred were among the early punctures by the operator.

Because of the ease of performance and because of the lack of sequelae, resulting in nearly 100% co-öperation on the part of the patients, we have substituted the cisternal for the lumbar puncture as a routine measure, and are constantly training men to do the same.

CONCLUSIONS

1. In skilled hands this is not a dangerous procedure.
2. It should never be attempted until one has been properly trained.
3. One who is clumsy with his hands should never be trained.
4. It is an easier procedure than lumbar puncture.
5. It is valuable for use in the management of syphilis.

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THE THYROID AND HEADACHE AT THE MENOPAUSE*

BY NEIL CAMPBELL STEVENS, M.D.†

FOR three years the Cornell Clinic in New York City has been conducting a special department for the study of headache. The Cornell Clinic is a pay clinic drawing from a class of people who, because of their environment and sedentary manner of living, seem to be especially prone to headache and nervous disorders. The great majority of this class are city dwellers. They enjoy comparatively little sunlight and fresh air and as a class take very little exercise. Their vacations amount to no more than a breathing spell. They breathe air polluted by the exhausts of numberless motor cars and other atmospheric impurities. Their nervous systems are in a state of constant tension and are traumatized by the crowding, noise and traffic incidental to city life.

Headache is not a common complaint of the laboring classes and hence is not frequently seen in the free clinics. The patients are not ill enough to receive hospital care. The general practitioner does not see a sufficient number of selected cases to make a study of them, so there has been comparatively little research work done on such headaches.

Out of a long series of cases of headache due to many causes, a few distinct types begin to emerge. For the most part they fall readily into the classification given by Howe, in Nelson's *Loose Leaf Medicine*, which contains an excellent description of the subject.

The type of headache which I am about to describe in this paper I have not seen described elsewhere. Many women between the ages of forty-five and sixty suffer from recurrent headache. It is not an uncommon complaint, but because it is not a serious condition and in the majority of cases causes little incapacity, it excites small interest in the mind of the general practitioner.

After reviewing a large number of cases of headache it was noted that certain patients about the time of the climacteric complained not only of headache but of other symptoms which were remarkably constant and which, together with the headache, formed a definite and characteristic syndrome. It has no counterpart in the male.

Women who have been subject to attacks of migraine in earlier years are very likely to suffer from headache of the menopause. In women past middle life migraine loses its peculiar characteristics; the aura disappears; the periodicity of the attacks is not so noticeable; their severity

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The type of headache described here must not be confused with another type occurring at the menopause, which sometimes accompanies a vasomotor disturbance common at that time. In this group the headache is usually not the prominent symptom. The characteristics of this group are hot flashes, nervousness and headache. The basal metabolic rate has been estimated in a few of these cases and so far it has been on the plus side, ranging from a plus 2— to a plus 18. It is mentioned here because the treatment is the opposite of the other group. These cases are controlled well by the administration of ovarian extract (whole gland) and luminal. Thyroid extract aggravates their symptoms.

†For record and address of author see "This Week's Issue," page 186.

diminishes; they are no longer accompanied by nausea and vomiting; and the sufferer begins to lead a more comfortable existence, although subject to frequent attacks of dull headache. It is not only in women who have been subject to attacks of migraine that this headache occurs. Headache may make its appearance for the first time at the menopause. The onset often dates from severe nervous shock, a death in the family, a period of prolonged strain, or from a severe illness. It seems frequently to follow an attack of influenza.

The sufferer, then, is a woman past middle life; in a majority of cases she is married and has borne children; she is likely to be overweight; her temperature is usually subnormal (it is sometimes found as low as 96.5); the pulse rate is apt to be slower than normal; the blood pressure is usually normal; the skin is dry and coarse; the hands and feet are cold; tactile sensation is diminished; the knee jerks are often sluggish.

The most prominent subjective symptom is headache, which is usually frontal. The vertex is also a common site. The headache is usually dull in character. It may occur every day, more often two or three times a week. Sometimes it is constant day and night. The pain, unlike that of migraine, is rarely severe. It is aggravated by fatigue and nervous tension. Vertigo is common. The memory may be impaired. Although usually of a phlegmatic appearance, these patients are extremely nervous; they are always tired. In cold weather they complain of the inability to keep warm. Even in mild weather their hands and feet remain cold.

The basal metabolic rate was estimated in all of these cases. It was found to vary between a minus 2 and a minus 20. This, taken in conjunction with the other symptoms and physical signs and with the rapid improvement following the administration of thyroid extract, was considered suggestive. It appears that this condition resembles myxedema in its milder state. It is evidently a condition of hypothyroidism. The frequency of infections, and the increase of nervous tension, are factors contributing to the depression of the thyroid gland.

Illustrative Case: A woman, aged fifty-six, married, with two healthy children, never had had any severe illnesses. The periods were becoming very irregular. Headaches, for the last eight years, have been moderately severe, general in character, occurring three or four times a week, lasting from half a day to a day, not accompaned with nausea or vomiting. The patient is always tired. At times she complains of severe pains in the knees. The skin is dry. She is much overweight. She is sensitive to cold; the hands and feet are always cold.

Physical Examination: An obese, intelligent woman, weighing 200 pounds; appears in good health. Temperature 97.5, pulse 70, blood pressure 130/70, basal metabolic rate minus 18. Urine and physical examination otherwise negative.

Treatment: The patient was given two grains of thyroid a day for a period of one week. This was reduced to one grain a day for a month. She improved remarkably. The headaches disappeared the pain in the knees disappeared about the same time. She has been observed for the last two years and it has been found that when she leaves off thyroid for more than a month at a time, her symptoms recur.

STATISTICS

This paper is based on a study of 28 cases. The patients have been followed over a period of from four months to two and one-half years. In reporting the results the word "cured", which cannot be truthfully used in dealing with this type of malady, is omitted. Of the 28 cases 13 or 46% were much improved; 9 or 32% improved; 2 or 7% unimproved. Four have not been heard from for some time; their present condition is unknown.

Below is a chart showing the temperature, pulse and basal metabolic rate in a few unselected cases.

Name	Age	Temp.	Pulse	Weight	Blood pressure	Basal Metabolism
Mrs. P.	48	97	76	112	110/70	—13
Mrs. F.	55	96.5	68	120	90/60	—17
Mrs. C.	42	97.6	84	124	112/70	—15
Mrs. F.	64	98.2	88	130	130/74	—12
Mrs. P.	55	97.5	70	183	164/98	—16
Mrs. S.	45	98.2	88	128	86/50	— 3
Mrs. P.	40	98.6	72	160	125/80	— 8
Mrs. F.	61	98.6	88	157	140/90	—13
Mrs. J.	44	98.4	70	116	114/64	—17
Mrs. S.	48	98.8	104	134	190/110	—14
Mrs. L.	53	98.2	88	167	125/80	—14
Mrs. O.	47	98.2	80	122	130/70	—11

SUMMARY

It appears that there is a definite symptom complex occurring in women between the ages of forty-five and sixty, which is characterized by headache, fatigue, nervousness, subnormal temperature, dry skin, sensitiveness to cold and a low normal or subnormal basal metabolic rate. Such patients are benefitted by the administration of thyroid extract.

TREATMENT

In the majority of cases thyroid extract acts as a specific. In only a minority has it had no beneficial effect. My practice has been, when the basal metabolic rate is definitely subnormal, to give a grain of thyroid twice a day for one week, then one grain a day for the next three weeks, having the patient return at weekly intervals for observation. In most cases the effect is striking, the headache disappears, the temperature rises, the skin becomes warm and moist, energy returns, and the patient often makes the remark that she has not felt so well in years. Luminal is often a very valuable drug in these cases. The patient should be urged to take some regular daily exercise in the fresh air.

VERMONT STATE MEDICAL SOCIETY

THE DIAGNOSIS OF ACTIVE TUBERCULOSIS IN INFANTS AND CHILDREN*

(The Significance of the White Blood Cells)

BY KENNETH D. BLACKFAN, M.D.,† AND L. K. DIAMOND, M.D.†

(Read by Dr. Blackfan)

THE intelligent treatment of active tuberculosis in infants and children is dependent on early and accurate diagnosis. Correct diagnosis bears also upon prognosis which is of "intense practical importance to the patient, his family and his friends." In the diagnosis of active tuberculosis, too much emphasis cannot be given to the importance of a carefully considered history and a painstaking physical examination. Laboratory tests are of inestimable value to substantiate clinical findings, when carefully performed and correctly interpreted. They serve also as useful prognostic and therapeutic aids, but in the diagnosis of this disease, and in other diseases as well, they should not be relied on alone.

Precision in the recognition of tuberculosis has been greatly facilitated within the past fifty years by the development of numerous technical procedures. However, notwithstanding, "mistakes" in diagnosis continue to occur. This unfortunately often results from incorrect interpretation and placing complacent reliance on the results of one or more of the tests. In tuberculosis, the most reliable laboratory finding is the demonstration of the tubercle bacillus by direct examination or by animal inoculation. In infants and in children, the collection of sputum is most troublesome,—often impossible,—and the attempted demonstration of the organism is negative altogether too often to make it a dependable aid. A safe rule to follow is to rely on negative findings, but only after, many, repeated examinations. The roentgenogram may reveal information of importance but it merely shows evidence of infiltration or destruction of tissue. Many different pathologic processes, such as pneumonia, new growths, asthma, lymphomas, etc., cast shadows which simulate tuberculosis too closely to depend on the roentgenological diagnosis unless confirmed by other evidences of the disease. Tuberculin, when injected or rubbed into the skin signifies that, at some time there has been an invasion by tubercle bacilli and the formation of a tubercle. This test should not be used to determine the activity of the process nor its extent. A large proportion of children otherwise normal, give a positive reaction, so such a reaction is of questionable help in determining the activity of tuberculosis, except in very young infants. A negative reaction, if it remains so, following repetition with increasing amounts of tuberculin, may be of great significance in excluding tuberculosis, but even here, caution must be exercised, as a negative reaction may be obtained with high dilutions in extensive and overwhelming tuberculosis

It is well known that careful study of the white blood cells in many diseased conditions is very helpful in arriving at a diagnosis. For instance, in acute streptococcal infection "this army of the interior" responds promptly and large numbers of polymorphonuclear cells scurry forth from their source of origin to defend the point of invasion. These may be demonstrated in the blood stream. Again, as in leukemia, with the rapid multiplication of abnormal cells in the bone marrow and the spleen, the diagnostic cells are swept into the blood stream and the diagnosis is settled by the hematological examination. It might be expected, inasmuch as tuberculosis is an invasive disease, that with the formation of such distinctive cells as the epithelioid and the giant cell, diagnostic evidences of its presence should be found in the peripheral blood, but until Cunningham, Sabin, Sugiyama and Kindwall[1] demonstrated in 1925 by the injection of living tubercle bacilli into rabbits that the degree of activity of the tuberculous process was reflected into the peripheral blood, hematological studies have not been regarded as a dependable diagnostic or prognostic aid in human tuberculosis.

In order to discuss more clearly the results of this experimental work, let us consider briefly the classification of the white cells used by Sabin[2] and her co-workers. They believe that the reticular tissue of the bone marrow, spleen and other lymphoid organs give origin to the three main series of white cells, the polymorphonuclear leukocyte, the lymphocyte and the monocyte. This latter cell is more generally known as the transitional or the large mononuclear cell. In their studies, these investigators found that an active tuberculous process caused an outpouring of monocytes in the tissues, and that this activity was reflected in the peripheral blood of the animals by an increase in the percentage and in the absolute number of monocytes, and a varying percentage of modified monocytes and epithelioid-like cells. In addition to the presence of these cells, there takes place a reversal of the normal ratio between

*Given at the Vermont State Medical Meeting at Burlington, Vermont, October 12, 1928.

†For record and address of author see "This Week's Issue," page 186.

monocytes and lymphocytes. Whereas normally the ratio of monocytes to lymphocytes is one to four or lower, during activity, the ratio changes as the number of lymphocytes falls and the monocytes increase. On the other hand, during quiescence or healing, as the monocytes fall the lymphocytes increase in percentage and number. More recently Cunningham[3] and Tompkins[3], Rogers[4], and others have shown that this monocyte-lymphocyte ratio and the presence of modified monocytes and epithelioid cells is of more than academic interest and may be used as a practical aid in diagnosis and in the prognosis of human tuberculosis.

This past year we have studied the blood in patients with active tuberculosis by means of the "supravital technic". In Group I were patients suffering from all forms of active tuberculosis, such as tuberculous meningitis, pulmonary tuberculosis, tuberculous peritonitis and adenitis and tuberculous pleurisy with effusion. The clinical diagnosis was confirmed in all of these cases either by necropsy, guinea pig inoculation, biopsy, or the findings of tubercle bacilli. In Group II, although the clinical diagnosis of tuberculosis was made, this was not confirmed by any of the above mentioned procedures.

During the active stage, the peripheral blood of the infants and children in Group I contained a relative and an absolute increase in the number of monocytes, and a corresponding decrease in the number of lymphocytes, and the appearance in the blood of modified monocytes and epithelioid cells. During the healing or quiescent stage, the relative and absolute number of monocytes diminished with a corresponding increase in the lymphocytes. As mentioned above, we were unable to substantiate definitely by the usual methods, the diagnosis of tuberculosis in the cases of Group II. However, the blood changes suggested strongly the presence of infection with the tubercle bacillus inasmuch as they were similar to the findings of the proven cases of tuberculosis in Group I.*

The modified monocytes and epithelioid cells which appear in the blood stream during the active stage of tuberculosis are readily recognized and differentiated from other pathologic mononuclears by the "supravital" staining method described by Sabin[5]. These cells can not be identified positively in the fixed smear stained by the method of Wright. However, when an unusual number of abnormal mononuclear cells are found in fixed smear, the presence of tuberculosis should be considered and confirmation as to the type of cell should be sought for with Sabin's method.

In regard to the diagnosis by the changes in the peripheral blood in active tuberculosis, reference to the following case is of interest.

*Data relating to these findings will be published in detail in the American Journal of Diseases of Children.

A little girl of nine years (Case 8) was admitted to the hospital in August, 1927, with a history of a cough, fever, loss in weight and epigastric pain. The diagnosis of tuberculosis was considered, but with an equivocal roentgenogram of the lungs and a negative tuberculin reaction, even with 2 mg. of tuberculin, a positive diagnosis was not made. Tubercle bacilli were not found. Roentgenograms of the gastro-intestinal tract revealed a duodenal ulcer. Appropriate treatment was recommended and she was discharged. Eight months later she returned with the reappearance of the former symptoms. On admission blood studies showed a monocyte-lymphocyte ratio of 1-1.2 and the presence of epithelioid cells. The diagnosis of tuberculosis was made on these findings though even with 4 mg. of tuberclin the reaction remained negative. Twelve days after admission, tubercle bacilli were recovered in the sputum and feces. The patient continued to run a downhill course and finally died one month after admission. Necropsy showed extensive generalized tuberculosis.

As to prognosis, eight patients with a steadily increasing monocyte-lymphocyte ratio, died. In three patients after an initial rise in the monocyte-lymphocyte ratio, the ratio was reversed and approached the normal for the age. As the lymphocytes rose it was noticed that the large young lymphocytes predominated. The changes in the blood preceded and pointed to the general improvement in the patient's condition. In one patient, the monocyte-lymphocyte ratio remained increased and as continued studies have shown no significant changes it seems reasonable to think that the tuberculous process although active is not advancing.

The following case is cited to illustrate that the changes in the blood may be used as a guide in directing the treatment of patients with tuberculosis:—

A diagnosis of appendicitis was made in a child of six years. At the operation, the peritoneum was found to be studded with tubercles. Heliotherapy was rigidly carried on for about eight months. The question arose as to whether this rigid treatment should be continued further as apparently she was in the best of health. The examination of the blood, however, indicated that the process although healing was not entirely quiescent, as shown by numerous young lymphocytes, by an increased number of monocytes and an increased monocyte-lymphocyte ratio. Rigid treatment therefore was continued for three months. At the end of this period the monocyte-lymphocyte ratio was normal. We believe this meant that the tuberculous process had healed and felt justified in advising the patient gradually to resume a normal regime of life.

These observations show that: In infants and children, the degree of activity of the tuberculous process is indicated in the peripheral blood by (1) the ratio of monocytes to lymphocytes and (2) by the presence of modified monocytes and epithelioid cells ("supravital" stain); furthermore such changes in the blood are of diagnostic and prognostic aid and may be used as a guide in the treatment of this disease.

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SOME SURGICAL COMPLICATIONS OF RESPIRATORY INFECTION*

BY JAMES S. STONE, M.D., F.A.C.S.†

THE surgical complications of respiratory diseases occur from the spread of the infecting organism by direct extension or through the lymphatics, or through the blood stream. The same pathologic processes may take place in any part of the body. These processes may be altered by treatment but technical advances in surgery do not in any sense change the fundamental principles of surgical pathology.

Infections in the upper respiratory tract may involve the mucous membrane and the lymphoid tissue of tonsils and adenoids. Tonsillar infection, however, is fully as often the result of infection by food and by dirt carried to the mouth as by bacteria carried in the inspired air.

Fortunately the infections originating in the lymphoid tissue of tonsils and adenoids usually spread by the lymphatics to the lymph nodes and are thus held in check, although the glands themselves may be damaged or destroyed. The infections originating in the tonsils and adenoids which concern the surgeon are either pyogenic or tuberculous. The differentiation is at first not always easy, though in general the slower onset, the milder constitutional disturbance and the less severe local signs indicate tuberculous rather than pyogenic infections. The course of the tuberculous infection is usually slow but in some infants it may be very rapid.

Glandular enlargement due to syphilis or to Hodgkin's disease may lead occasionally to confusion. The accompanying symptoms of syphilis soon make the condition clear. The characteristics of the glands in Hodgkin's disease are the absence of inflammation and the uniform consistency of the glands regardless of their size. There is no periglandular swelling. The glands are discrete, not matted together, not softening to make an abscess.

Inflammation in the lymph glands is always secondary. The location of the glands is a guide to the primary focus. As a simple working guide tonsillar infections may involve the group of glands in front of and under the anterior border of the middle of the sterno-mastoid muscle, just below and behind the angle of the jaw. Infection of the adenoids may cause trouble in the glands directly behind the middle of this muscle. Infections of the upper jaw, and about the upper lip and nose may lead to trouble in the glands at the angle of the jaw. Infections in the lower jaw, the floor of the mouth and lower lip may involve the submaxillary and sublingual groups. Infection of the middle ear may involve the glands near the mastoid process. Infections in the preauricular glands occurring in the course of middle ear trouble are due to secondary inflammation of the auditory canal. Inflammation of the upper eye lid, forehead, or anterior scalp may involve the preauricular glands.

The tonsils are the most common seat of infection and as has already been stated infected food is the most prolific source of the tonsillitis which concerns the surgeon.

Tuberculous infection of a cow's udder is the usual source of glandular infections as well as of tuberculous peritonitis and tuberculous bone and joint disease.

Vermont fortunately is one of those States in which there are large areas free from bovine tuberculosis. But there is need of the added safeguard of pasteurization to eliminate tuberculosis and septic sore throat. The recent epidemic in Lee in Berkshire County, Massachusetts is a clear demonstration of what a pyogenic infection of a cow's udder can do, when milk is not pasteurized.

When a pyogenic infection spreads directly from the mucous membrane of the nasopharynx directly into the tissues it is more dangerous than is the extension along the lymphatics. We have to deal with a cellulitis, often fulminating, in tissues with extremely free vascular supply.

Retropharyngeal abscesses may result from a cellulitis due to direct extension or from the breaking down of the lymph glands in the posterior pharyngeal wall. At times tuberculous lymphatic glands may be found in this location.

Retropharyngeal abscess is dangerous because of the difficulty caused in breathing and swallowing. Furthermore the toxemia is often extreme. The child is completely exhausted. Not infrequently for reasons not wholly clear any struggle in the attempt to open the mouth may cause instant death. The heart action stops. Therefore the greatest care must be taken in these cases to avoid unnecessary examination or delay about incision if operation is required.

The risk from meddlesome surgery in these

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†For record and address of author see "This Week's Issue," page 186.

conditions is extreme. Metastatic abscesses often fatal may follow incisions into the inflamed tissues before nature has had a chance to limit the infection. The same principles of pathology and surgery apply to a cellulitis about the nasopharynx as apply to a cellulitis of the arm. And the same principles hold true in regard to infections about the sinuses and middle ear. Peritonsillar abscesses are terribly painful and distressing conditions, but they are not bettered by premature attempts to evacuate the pus.

In general the improvement in surgical technique of recent years coupled with the growth of premature specialization has led to a very great increase in operations on the nose and throat and has encouraged a very radical viewpoint. To the onlooker in the large city it seems as if much unnecessary surgery is being done and as if the postoperative complications seem to increase in proportion to the radicalism of the procedure. Clever technique can do much. But it cannot change the principles of surgical pathology.

Metastases from the respiratory infections are common. They may involve bone or joint, pericardium, peritoneum or pleura, or that weak spot in the alimentary canal, the appendix.

The bone and joint infections may follow either a pneumonia or an upper respiratory infection. Metastases to the joints or epiphyses are not uncommon in infants and young children. They should be treated by adequate drainage with scrupulous care to avoid operative injury to synovial surfaces and with the least possible damage to bone. The epiphyseal line is the common location of the infection. Nature tends to protect the shaft of the bone from invasion by the escape of pus from the bone along the epiphyseal line. The invasion of the joint need not be feared if drainage is established. The introduction of any foreign body into the joint, however, does great damage. Permanent harm often comes from the complete separation and consequent necrosis of an entire epiphysis. This occurs most frequently in the epiphyseal head of the femur which rests upon a relatively small surface of the neck. The epiphyseal surfaces at the lower end of the femur and the upper and lower ends of the tibia are so much larger that complete separation is less likely. The danger of permanent deformity can be reduced only by prompt drainage before the pus has spread so widely at the epiphyseal line as to float the epiphysis completely off from the shaft.

Involvement of the pericardium may occur as a part of an overwhelming septicaemia with invasion of many of the serous cavities, but occasionally may occur as a single metastasis of upper respiratory infection. It may occur as a complication of an empyema.

In draining the pericardium, certainly in children, I wish to enter a plea for going through the sternum. A hole may be made readily with a Hudson drill and enlarged with Rongeur forceps, exposing the pericardium with much less danger of injuring the pleura than is possible at the side of the sternum. The danger of a sudden dilatation of the heart, weakened as it is by the infection, is very serious if the support given by the effusion is removed too rapidly.

Metastatic peritonitis, a peritonitis without preceding inflammation of any organ such as the appendix is not an uncommon complication of a respiratory infection. It may be either a streptococcus or a pneumococcus infection. It is often impossible to differentiate before operation this type of peritonitis and that secondary to appendicitis, unless by the location of the tenderness. It is possible and most important, however, for the surgeon to recognize the condition promptly at operation. The fluid is odorless, rather mucilaginous, often containing considerable fibrin. It is usually not definitely walled off. It is most important that the condition be recognized at once, that the abscess be drained and that not a single unnecessary maneuver be made. Drainage of the pus without spreading it by needless exploration and without trauma to the peritoneum is essential. If the surgeon has in mind the possibility of the condition he will recognize it promptly, will not confuse it with the relatively clear and odorless fluid so often encountered near a foul abscess and will by staying his hand, increase the chance of recovery.

Empyema is the great surgical complication of pneumonia. But it is not a surgical emergency. This is the chief lesson taught by the studies of the empyema commission during the war. Mechanical interference with breathing or with the heart can readily be relieved by simple tapping, but this is seldom necessary. The experiences of the war also defined more clearly the merits of open and closed drainage.

In the streptococcus infections characterized by relatively thin pus with little fibrin, closed drainage is of great value. In infants particularly it is useful, saving many who could not withstand the open drainage. Closed drainage stabilizes the lung, removes pressure and helps to reduce toxic absorption. But we must remember that the primary lesion is pneumonia, often a broncho-pneumonia varying, from day to day in its manifestations and in the portions of the lung involved. Recovery depends upon building up adequate resistance. Surgery can aid only by securing adequate drainage with the least possible incidental harm to the patient.

In the pneumococcus infections the amount of fibrin present often interferes with adequate drainage by the closed method. But open drainage is always possible if the attempt at closed drainage fails.

Success in the closed method depends in great part on minute attention to the details of after-care. Those who believe in the method and can give the needed after-care will get a larger per-

centage of successes than can be obtained where the after-care is inadequate. Some cases require open drainage. The problem confronting the surgeon is mechanical. It is not determined by a study of the infecting organism.

Involvement of the peritoneum may occur as a metastasis in the course of empyema. The abdominal pain, the vomiting, the constitutional disturbances arising under these conditions must not be passed off as due to pleurisy or a fresh patch of pneumonia or inadequate drainage. A careful consideration of the new symptoms and a thorough examination of the abdomen are always demanded.

Totally different from metastasis to the peritoneum is the extension of empyema below the diaphragm. Without enumerating the many ways in which empyema has drained spontaneously I want to mention that it may perforate the central fibrous portion of the diaphragm or may burrow downward behind the crura of the diaphragm in those spaces near the spinal column through which pass the blood vessels and lymphatics, or perhaps through the similar but smaller spaces besides the ensiform. In thus extending downward the pus remains outside the peritoneum, either behind it or in the so-called broad ligament of the liver.

Aided by gravity it burrows downward dissecting off peritoneum as it goes Finally it works into the iliac fossa, dissecting the peritoneum off the front of the abdominal wall. As the amount increases it works up behind the posterior rectus sheath which ends a little below the umbilicus. Finally it discharges from the umbilicus. Drainage of the pleural cavity may cure these cases. The peritoneum is not involved and should not be opened.

Little need be said regarding appendicitis secondary to respiratory infection. It has seemed to be very common of late years. The tendency is to attribute the abdominal symptoms to the upper respiratory condition which came first and may be very pronounced.

Many surgical complications which may arise in the course of respiratory infections among children have been mentioned. All are based on practical clinical experience. Fresh symptoms arising in any illness should not be passed by as due to the original focus. Mistakes arise almost invariably from an inadequate or inaccurate consideration of the history, of the past and present symptoms, and from the neglect of careful physical examination whenever demanded. There would be little interest in medicine if unexpected complications did not arise. Co-operation of physician and surgeon is often necessary for solving problems of diagnosis and relieving the patient. But radicalism in surgery, particularly in the specialties, must be discriminating if it is not to be dangerous.

OBITUARIES

Dr. E. M. Nichols was born in Lyndon, Vermont, September 17, 1872. He was a graduate of Lyndon Institute, receiving his degree in medicine from Baltimore Medical College in 1895, later taking a post graduate course in surgery at a New York hospital.

For four years he was a hotel physician in Portland, Oregon, the remainder of his active practice being in Barton, Vermont.

He was an industrious, hard-working man, although handicapped at times by ill-health. Aside from being an able physician, he was a keen business man. He developed an electric distributing plant for Glover and surrounding communities, selling it about one year ago for $100,000.

The last six years of his life he maintained a private hospital which had a most excellent reputation.

He was married in 1926, to Miss Esther Barter, R. N., of Quebec, who survives him with one son, Elwin Milton, Jr.

Fraternally, he was a Mason.

Dr. Nichols died May 3, 1929.

W. N. BRYANT, M.D.

Dr. W. N. Bryant of Springfield, Vermont, died July 10, 1929, in his seventy-ninth year, thus ending a long and distinguished service to his profession and state.

He was a hospitable and genial man with a keen sense of humor and much sought after as an after-dinner speaker.

Dr. Bryant was born in Weston, Vermont, September 26, 1851. He attended Montpelier Seminary and obtained his medical education at Harvard and the University of Vermont, graduating from the latter institution in 1873. He resided in Ludlow all the years of his active practice, removing to Springfield, Vermont, about a year before his death.

He was a member of the county and state medical societies, having acted as president of both organizations, also a member of the American Medical Association. He was, in politics, a Republican, having represented his town in the legislature and later being state senator from Windsor County. For many years he was a member of the Board of Supervisors for the Insane. He was also a member of the Board of State Highway Commissioners, appointed by Governor Harkness. Fraternally, he was a Mason, Shriner and Odd Fellow, and for many years was a trustee of the Odd Fellows Home at Ludlow.

Besides Mrs. Bryant, he leaves two children, W. Leroy Bryant, President of the Chucking Grinder Company in Springfield, and Mrs. Eben J. Fullam, wife of the treasurer of the Fellows Gear Shaper Company in the same city.

BIRTHS AND DEATHS IN VERMONT FOR 1928

There were in 1928, 7042 births with a rate per 1000 of 19.7 and 4886 deaths of which 457 were under one year; the death rate being 12.1 per 1000 for all classes.

MISCELLANY

VERMONT DEPARTMENT OF PUBLIC HEALTH FOR THE MONTH OF JUNE, 1929

The incidence of communicable diseases during the month is as follows: chickenpox 61, measles 5, mumps 34, poliomyelitis 1, smallpox 4, whooping cough 66 and tuberculosis 28.

The Laboratory of Hygiene reports the following examinations for the month:

Examinations:

For diphtheria bacilli	78
For Widal reaction of typhoid fever	29
For malarial parasites	0
For tubercle bacilli	249
For evidence of syphilis	324
For gonococci in pus	85
Of blood for contagious abortion in cattle	56
Of water, chemical and bacteriological	106
Of water, bacteriological	123
Of milk, market	95
Of milk, submitted for chemical only	4
Of milk, submitted for microscopical only	0
Of foods	27
Of drugs	0
For the courts, autopsies	3
For the courts, miscellaneous	17
Autopsies to complete death returns	3
Miscellaneous examinations	81

The After-care Division for Poliomyelitis reports 100 patients seen, 124 home visits made, 31 new pieces of apparatus fitted, 44 orthopedic corrections made to shoes, 27 pieces of apparatus altered, one patient admitted to a hospital and four discharged from hospitals. The vocational worker of this Division made 29 visits to patients. Sales through the vocational worker amounted to $41.95.

The State Advisory Nurse of the Maternity and Infancy Division visited eight towns, assisting at clinics, attending various meetings and giving talks to organizations.

The Tuberculosis Division has published and distributed 10,500 copies of the *Modern Health Crusader*. The Director gave two talks before clubs.

THE COMMENCEMENT EXERCISES AT THE UNIVERSITY OF VERMONT MEDICAL SCHOOL

On June 17, 1929 the University of Vermont Medical School conferred the degree of M. D. on thirty medical school students whose names are as follows:

Albert Roland Amarantes, New Bedford, Mass.
Maxwell Joseph Antel, B. S., Bridgeport, Conn.
Edward Donald Asselin, Burlington.
Elizear Francis Asselin, St. Johnsbury.
Albert Edward Barcomb, cum laude, South Woodbury.
Herbert Almon Bartholomew, Jr., cum laude, Whitehall, N. Y.
Maurice Norbet Bellerose, Rutland.
John Lester Berry, B. S., Burlington.
John Joseph Bush, Burlington.
Claire Glendon Cayward, B. S., Seneca Castle, N. Y.
Frank Fred Chaya, Burlington.
Walter Stephen Denning, Brookline, Mass.
Herbert Lawrence Flynn, Berlin, N. H.
Gilbert Vincent Foster, New Bedford, Mass.
Reginald Eric Gillson, Burlington.
Edward Treen Hare, Springfield, Mass.
Edwin Gordon Hebb, A. B., Bridgton, Me.
Thomas Earl Horsefield, Jr., Readville, Mass.
Everett Stark Kinlock, Jr., Troy, N. Y.
Jasper Newman Knox, Burlington.
William Joseph McNamara, A. B., Fair Haven.
Edmund Reeves Mitiguy, Burlington.
Arthur Louis More, B. P. E., Holyoke, Mass.
Donald Campbell Moriarty, Waitsfield.
Emelie Munson Perkins, A. B., cum laude, Rutland.
Alton Beecher Skelton, cum laude, Canastota, N. Y.
Raymond Joseph Turley, cum laude, Berlin, N. H.
Harold Hanson Twitchell, B. S., Lancaster, N. H.
Maurice Jean Villemaire, Winooski.
Irving Werner, New York, N. Y.

Prizes for special merit were conferred as follows:

First Prize—Emelie Munson Perkins.
Second Prize—Alton Beecher Skelton.
Woodbury Prize for Proficiency in Clinical Medicine—Albert Roland Amarantes.
Highest Standing in the Sophomore Class—Nehemiah Alvardo Towne.

On Saturday June 15 the meeting of the Medical Alumni Association was held and a banquet was enjoyed. A large proportion of the Alumni were present, the older graduates being especially well represented.

The following named officers were elected for the ensuing year: Dr. P. P. Johnson, class of 1900, Beverly, Mass., president; Dr. Frank J. Sherman, '80, of Ballston Spa, N. Y., first vice-president; Dr. C. E. Hunt, '04, of Montpelier, second vice-president; Dr. F. C. Phelps, '93, of Vergennes, third vice-president; Dr. Walter McKenzie, '94, of Burlington, fourth vice-president; Dr. Fenwick G. Taggert, '03, of East Greenwich, R. I.; fifth vice-president; Dr. Charles Goyette, '24, of Barre, sixth vice-president; Dr. E. D. McSweeney, '22 of Burlington, secretary-treasurer; Dr. P. P. Lawlor, '20, Dr. F. S. Kent, '19, and Dr. O. N. Eastman, '08, all of Burlington; members of the executive committee; Dr. David Marvin, 1900, of Essex Junction, Dr. James Hamilton, '92, of Rutland and Dr. Lyman Allen, '96, of Burlington, members of the obituary committee.

BENNINGTON COUNTY MEDICAL SOCIETY NOTES

The Society met at the Putnam Memorial Hospital, Bennington, May 29.

A communication from the A. M. A. relative to cultists, and their endeavors to force their way into hospitals, was read.

The Society is fully in sympathy with the attitude of the American Medical Association in its stand of "no recognition of hospitals that allow cultists to practice in them." It is needless to add that M.D.s here do not counsel with cultists, nor are the cultists allowed to treat patients in the local hospital.

Five members of the Society were appointed a commission to be known as the Bennington County Milk Commission.

Dr. L. H. Ross was detailed to confer with the town school board relative to the unsafe and unsanitary condition of the graded school.

Frank J. Hurley, M.D., presented a fine paper entitled, "Acidosis."

Doctors C. S. Buchanan and E. M. Gardenier re-

cently attended the commencement exercises at Vermont University, Burlington.

Frank E. Dean, M.D., is a patient at the Putnam Memorial Hospital.

Edward A. Tobin, M.D., Colonel U. S. Army Reserve Corps, performed a tour of duty at Fort McKinley, Portland, Maine, from July 3 to 18.

John E. Trotter, M.D., Surgeon-in-Chief at Putnam Memorial Hospital recently purchased a fine residence on Elm Street, Bennington, Vt.

WASHINGTON COUNTY

Dr. William McFarland and family are away from the city for two months while Dr. McFarland is having his vacation.

The July meeting of the Barre City Hospital Staff was held at Dr. E. H. Bailey's camp in Marshfield. In order to have supper each was obliged to catch trout. We all fared well.

Dr. D. C. Jarvis is ejoying his vacation at this time, attending the A. M. A. meeting.

STUDY, PREVENTION AND TREATMENT OF TRACHOMA

EXCERPTS FROM A PAPER BY PAUL D. MOSSMAN, SURGEON, PUBLIC HEALTH SERVICE, PUBLISHED IN THE UNITED STATES DAILY

An eminent oculist of Philadelphia says that in 1890 11 per cent. of all patients who came to the Wills Eye Hospital dispensary had trachoma, while at present about one-tenth of 1 per cent. have this disease.

This decrease he attributes largely to the fact that in 1897 the immigration law was amended so as to exclude immigrants afflicted with trachoma. Naturally the fact that trachoma sufferers already in Philadelphia had access to first-class treatment in the dispensaries of the city aided in reducing the number of cases.

In 1913 the Public Health Service began its campaign against trachoma in Kentucky, following a survey made by Senior Surgeon John McMullen which showed that this disease was quite prevalent in many parts of the State. Small temporary hospitals were established which served as centers of treatment and of field surveys and as clinics. As the work became known it became popular and spread to other States in the Central South.

There are now hospitals in Missouri, Kentucky, and Tennesee, with a field worker in each State surveying the trachomatous areas to determine the prevalence of the disease and educating the patient and his family as to means of preventing its spread.

The Public Health Service endeavors to educate trachoma sufferers and persons likely to come in contact with them as to the danger of infection and means of preventing it. This is accomplished by means of clinics, home visiting, posters and pamphlets, talks in schools and the like.

The hospital and field activities of the Public Health Service directed against trachoma are carried on with the co-öperation of the State health departments of the respective States. By this means it is hoped that, by demonstrating the feasibility of prevention and eradication, the States will be persuaded to assume more and more of the burden of this work themselves.

Trachoma is probably the cause of more blindness in the affected area than any other single disease. We know that in Missouri over 20 per cent. of persons drawing blind pensions were made blind by trachoma. It is the largest single cause of blindness in that State.

In connection with the hospital at Rolla, Mo., the Public Health Service maintains a research laboratory, where the time and energies of a skilled bacteriologist are devoted to the discovery of the bacterial cause of trachoma. This difficult task has been undertaken by many workers so far without success.

Noguchi succeeded in producing a trachoma-like disease in animals by the use of massive inoculations of cultures of an organism recovered from cases of trachoma in Indians, but his results have not been confirmed by others.

In view of the fact that many persons in close contact with trachoma do not contract it, and on account of the many theories advanced as to its mode of causation and spread, the disease is being studied from the epidemiological standpoint.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 15301

FOURTEEN MONTHS' PALPITATION

MEDICAL DEPARTMENT

First admission. An Italian butcher fifty-four years old entered November 17 complaining of attacks of palpitation of fourteen months' duration.

He had attacks of acute rheumatism at twenty, twenty-five, thirty-five and forty-five, with less severe attacks in the intervals. Four years before admission he felt unequal to the heavy work he had been doing. He sold his butcher shop and took to clerical work. Two years before admission he noticed shortness of breath on exertion. In April a year and half before admission one day of very hard work left him tired, listless and miserable for the whole summer. Fourteen months before admission just after going to bed he had an attack of palpitation followed by great difficulty in getting his breath and a sense of choking, not relieved by going to the window or later by going outdoors. He stayed in bed for three days, then returned to his previous mode of life under a doctor's care. He had no more attacks for a year, and had less marked dyspnea. Six months before admission he noticed pounding and irregularity of the heart on moderate exertion. Two months before admission on going upstairs he felt too tired to go on and had a milder attack of palpitation, dyspnea and choking like the one a year earlier. For a week at this time he was very pale. During the past two months he had had these attacks two or three times a week, never waking him at night, always relieved by sitting up, lasting one to five hours. He never had pain.

His family history is not significant except that three of his wife's later pregnancies had ended in miscarriages and one in a stillbirth.

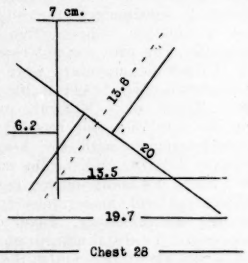
He had always been strong and healthy. Fourteen years before admission he had an operation at the Eye and Ear Infirmary for sinus difficulty. For ten years his bowels had required almost daily catharsis. Two years before admission he weighed 180 pounds, his heaviest weight. By medical advice he had dieted and reduced to 140 pounds. He seemed a nervous, anxious, conscientious man. The history was believed to be reliable.

Clinical examination showed a well nourished man sitting propped up in bed with slight dyspnea. Voice hoarse. Teeth poor. Marked pyorrhea. A few small non-tender submaxillary glands. Apex impulse of the heart maximum in the sixth space. Left border of dullness 13 centimeters to the left of midsternum, 5.5 centimeters outside the midelavicular line, right border 4.5 centimeters, supracardiac dullness 5.5. Sounds normal. Mitral second sound greater than aortic second. A systolic murmur and a loud early diastolic at the base. The same diastolic heard also at the apex, where a loud systolic was heard. No thrill. Rhythm very irregular. Pulses and arteries normal. Blood pressure 200/75 to 270/50. Electrocardiogram showed auricular fibrillation, rate 100, inverted T_1 (digitalis type), slight left axis deviation. Lungs, abdomen, genitals, pupils, reflexes and rectal examination normal.

Urine: 15 to 80 ounces, specific gravity 1.019 to 1.032, the slightest possible trace to a slight trace of albumin at 9 of 11 examinations. Benedict's test green at one, one to occasional leukocytes at 7. Renal function 40 per cent. Blood: 9,000 to 19,300 leukocytes, polymorphonuclears 59 per cent, hemoglobin 75 to 80 per cent, reds 5,240,000 to 4,050,000. Smear normal. Hinton weakly positive once, moderately positive once, questionable once. Two Wassermanns weakly positive, one moderately positive. Non-protein nitrogen 30 milligrams. Blood culture negative in both flasks.

Temperature 97° to 100° with two periods of elevation, December 12 to 14 to 102° and December 30 to 31 101.5°; normal December 1 to 11, 18 to 26 and January 2 to 5. Pulse 60 to 110, radial; frequent deficit, 5 to 15 beats. Respirations not remarkable except for increase to 28-30 December 28 to 31.

X-ray examination showed the heart shadow very much enlarged (see diagram), largely to



the left in the region of the ventricle. There was also some increase in the supracardiac shadow. The aorta was rather wide in both views, particularly at the base. There was some coarse soft mottling around the roots of both lungs. Examination of the teeth showed al-

veolar retraction suggesting pyorrhea; no definite abscesses.

At the end of a week the patient had one attack of palpitation. He tired easily when sitting up in a chair. No cause was found for the slight fluctuations in temperature. He lost appetite. He had marked dyspnea with slight exertion. The night of December 12 he was very uncomfortable for the first time. The temperature rose to 101°, the leukocyte count to 16,000. The tonsils showed increased redness. The next day they were swollen and sore. In four days the symptoms had subsided. During the next week he did very well and at the end was able to walk sixty yards in comparative comfort, although his ankles showed a little pitting edema and the liver edge was palpable a fingerbreadth below the costal margin. The spleen was also palpable. During the next three nights he was awakened by attacks of dyspnea and palpitation. December 31 he had elevation of temperature. The finger joints in the left hand were swollen and painful. He was given salicylates. In three days the symptoms were gone. January 5 after he had been up for four hours his ankles and feet were very edematous. That day he was discharged improved, with orders for rest in bed.

History of interval. Upon leaving the hospital he was carried upstairs to his home. Nevertheless that night he was very dyspneic and his feet swelled. He remained in bed, but continued to become more dyspneic.

Second admission. January 13, nine days after his discharge, he reëntered in considerably worse condition than when he left. He was cyanotic, with pale mucous membranes. In the posterior pharynx was a small amount of pus or mucus. The lung expansion was not percussed on account of dyspnea. The apex impulse of the heart was strong. The left border of dullness was 10 centimeters from midsternum, 2.5 centimeters outside the midclavicular line, the right border 2 centimeters, the supracardiac dullness 4 centimeters. The rhythm was absolutely irregular. The rate was not rapid. Harsh systolic and diastolic murmurs were heard all over the precordia, best heard at the third left interspace. There was Corrigan pulse. On scratching the skin the color receded from the scratch synchronously with the heart action. Blood pressure 170/70. Moist râles were heard low in both bases, not many or very coarse. Abdomen distended and moderately tympanitic. Palpation was unsatisfactory. Liver dullness 3 centimeters below the costal margin on the right. Edge not definitely felt. Only the slightest recognizable degree of edema of the ankles was present. Genitals and rectal examination, pupils and knee and ankle jerks normal. Fundi negative except for possible engorgement of the veins.

Urine: amount and specific gravity normal, the slightest possible trace to a very slight trace of albumin at both of two examinations, 8 to occasional leukocytes per field at both. Blood: 16,700 to 18,200 leukocytes. Non-protein nitrogen 34 milligrams. Blood culture: no growth.

Temperature 101.7° to 97.5°, pulse 72 to 99, respirations 21 to 40.

The dyspnea varied. At times it was very marked. January 16 the spleen was palpable, there were congestive râles at both bases and edema of the sacrum and feet. The point of maximum intensity of the heart beat was in the sixth space, 14 centimeters from midsternum. The evening of January 17 there were generalized râles throughout the chest. The blood pressure was 290/60. Therapeutic bleeding was done and 300 cubic centimeters of blood withdrawn, when the cannula became plugged. Ten minutes later the patient's mental condition improved and he said he felt better. The systolic blood pressure was 240 immediately before and immediately after the bleeding. The following day he died.

Discussion

by Richard C. Cabot, M.D.

Notes on the History

I suppose anybody reading that history would come to the physical examination with certain expectations.

Any man who has such complaints and such a history would be suspected of having the rheumatic type of valvular disease with very possible involvement of the pericardium and myocardium also. If it is the rheumatic type of valvular disease it is much more apt to be mitral stenosis than any other lesion you can name, with the aortic and tricuspid valves involved to a lesser degree. So that is what we are looking for.

Notes on the Physical Examination

"Blood pressure 275/50." With such a pulse pressure as that we hardly can have any further doubt about one lesion, aortic regurgitation. In the absence of any of the other diseases that cause increase in pulse pressure, one would certainly say aortic regurgitation whatever else he may have.

The amount of urine is high. The normal is 48 ounces. But that urine examination is essentially normal as far as any evidence of kidney disease is concerned. It is the sort of urine you expect with passive congestion.

The chart is normal most of the time.

I will ask Dr. Holmes to discuss the X-ray films.

Dr. George W. Holmes: I might first describe in a few words the method we use in the examination of the heart in this hospital. We use a combined method of fluoroscopy and tele-

roentgenography. We are not using orthodiagraphy to any extent. This combined method seems to be more satisfactory for us. The patients are fluoroscoped at the usual distance, and observations are made as to the respiratory excursions of the heart and the pulsations of its various chambers. The patients are rotated from side to side so that we are able to view the heart and great vessels in different positions. The plate was taken at a distance of seven feet. At this distance the magnification is very little. It is less than the width of a pencil mark, and represents quite accurately the heart shadow. It may change as the patient is rotated to one side or the other, increase the distance to the left and decrease the distance to the right or the opposite. The position of the diaphragm also affects the heart shadow. If the plate is taken at full inspiration the heart moves down with the diaphragm and the transverse diameter is diminished. In order to compare these figures with the figures made by percussion it is necessary that the plates be taken during quiet breathing. The figures on this plate show the distance to the left of the midline to be 13.5 centimeters, to the right 6.2, and correspond rather closely to the figures given in the physical examination, 13 to the left and 4.5 to the right. The X-ray examination shows the heart rather larger than the physical examination. I think that perhaps as a rule the total transverse diameter of the X-ray shadow gives a little more accurate idea of the size of the heart than any other method. This heart is enlarged more to the left than to the right. He had a left ventricular preponderance, with a very definite increase in the whole heart shadow. There is nothing characteristic about it except that the left ventricle is enlarged, with probably some dilatation of the whole heart. There is an increase in the supracardiac shadow, which is composed of the vessels that arise from the heart and the mediastinum. It is not fair to say that the aorta is necessarily dilated. Any one of the organs which form this shadow may be the cause of that increase. By rotating and getting a different position under the fluoroscope we are sometimes able to distinguish the aorta from the other shadows. In this case we said the aorta was slightly dilated, and dilatation of the aorta we think may be due to lues or high blood pressure. We are not usually able to distinguish between the two. The dilatation of high blood pressure is apt to be more diffuse. The whole arch is involved. This is a rather diffuse dilatation, so that we cannot go beyond the statement that the aorta is apparently somewhat dilated. So that our interpretation in this case would be that the heart was very definitely enlarged, that the enlargement was mostly in the region of the left side of the heart, that there was a moderate amount of dilatation accompanying it and some dilatation of the aorta which could be due to high blood pressure.

DR. CABOT: In a few minutes we will go back to the aortic regurgitation which we know to be present in this case. There may be mitral trouble as well. Can you throw any light on that question from the X-ray point of view?

DR. HOLMES: I do not know that we can in this case. Once the heart is generally dilated we have not much evidence. Recently we have been making some observations in the oblique view and we can sometimes distinguish dilatation of the left auricle, but there again we do not feel sure whether it is due to a valve lesion or a decompensated heart. When general cardiac dilatation has occurred we are not able to get very far.

DR. CABOT: I am a great enthusiast for X-ray in clinical diagnosis. So far I have got very little help in cardiac cases; when they have something to say I have had something to say also. When in doubt, as here, in distinguishing adherent pericardium or aneurysm it has not usually helped me. I am just giving you my impressions as they are up to the present.

It is quite possible that he caught tonsillitis in the ward. The point that should be brought out is that we often cannot prove any infection from without. Often a patient will break out with this when there is no tonsillitis that we can find in the ward or in those that attend the patient. We presume that it is a contagious disease, but certainly we do not prove it in these cases.

It is rather unusual to have an enlarged spleen in cardiac disease. We generally try to feel the spleen and do not succeed.

"Ten centimeters from midsternum" is very different from the earlier record. I shall pay no attention to it. I do not believe in cardiac percussion anyway. This case exemplifies the sort of reason why I do not. No one can believe that heart is any smaller at the later time, yet the percussion measurements are smaller. It may have been done by a different man. In my experience you can get the size of the heart approximately by palpation. If you want more accuracy in a special case you have to have an X-ray. Percussion does not seem to me worth the time it takes.

If there was Corrigan pulse the second time no doubt it was there before, though they did not mention it.

There was less pulsation present than before.

I cannot account for the leukocytosis by anything we have found so far.

290/60. That is one of the highest pulse pressures that I can remember.

We see at the end the sort of sequence of events which it is much better to have happen in a hospital than in private practice. The rumor spread in private practice would be that you bled the patient and he died,—both of which would be true, but the conclusion from them ("he killed him") seriously unfair. I

think it is for that reason that many physicians are not willing to bleed patients even when the indications are clear. They justly fear that they would be blamed if anything should happen.

DIFFERENTIAL DIAGNOSIS

What essentials have we? The rheumatic history, the slow evolution of decompensated heart disease without any evidence of kidney disease. It is rather striking that there is so little edema at the end compared with the difficulty he experienced in breathing. One would expect that he would have more evidence of fluid in his legs. One cannot always account for those discrepancies. There are certain obvious things there which I believe we cannot doubt. I have no doubt at all that he had aortic regurgitation and a hypertrophied left ventricle with passive congestion of the lungs, liver and presumably other organs. Let us discuss what points of doubt there are remaining. Has he aortic stenosis? If he has rheumatism the natural conclusion would be yes, for rheumatism ordinarily ties those valves together in such a way as to produce stenosis as well as regurgitation. On the other hand it is hard to see how he could have such an enormous pulse pressure with much stenosis. I am really inclined to hedge and say he has little if any stenosis, but probably some on account of the nature of the lesion, although the physical signs are all on the other side. I have seen a number of cases with physical signs like this and some stenosis found.

What else? Has he a mitral lesion? There are no physical signs to suggest it. He has a good deal of cyanosis, but he could have that perfectly well from an aortic lesion alone. The X-ray does not help us. On the other hand the mitral valve is much more often affected than the aortic in rheumatic heart disease. On general pathologic reasoning the chances are that there is mitral trouble too. Again I will hedge and say yes, there is some mitral trouble, but not much. There is little if any stenosis, but the mitral valve will not be quite normal. As to the tricuspid, I have given up guessing. I have never seen a diagnosis of tricuspid disease made on rational grounds. I have occasionally hit it right myself. Generally I hit it wrong. I do not know any sign or group of signs by which we can diagnose it. The pulmonary valve is rarely affected. There are no particular signs pointing to it. I think one has just to let it go.

When a person has had many attacks of rheumatism he is very apt to have an adherent pericardium. This is not quite so likely to be found when the attacks begin in middle life as when they begin in childhood. The pericardium seems to be more sensitive in childhood than later in life. Dr. Holmes, is this man going to have adherent pericarditis?

DR. HOLMES: We have no evidence of it.

DR. CABOT: I have not either, yet it is entirely possible that in the absence of any evidence whatsoever (as happens in the majority of cases) adherent pericarditis can be present. It cannot often be diagnosed. I speak of it just as a possible pathologic association with the other lesions that we seem to have here.

There is nothing suggestive of disease in the myocardium, yet it is perfectly possible that there will be lesions there. There is nothing in the electrocardiogram or anywhere else whereby we could say so.

Are there any infarcts in the lungs, kidneys and spleen? It is quite likely in such a case. There is no evidence.

The spleen—why should it be palpable twice? I do not know. That is one of the facts that make us think of the possibility of acute or subacute bacterial endocarditis on top of the chronic endocarditis which we must think is there. What evidence have we pointing towards the coëxistence of an acute process with an older deforming process on these valves? (a) We have some temperatures, not all of which are accounted for; some are explained by tonsils, some by joint symptoms, some not at all. So these latter may be due to acute endocarditis. (b) A case in which you have joint symptoms while the patient is under observation with heart disease turns out more often than not to have some acute process on the valves. (c) We have a leukocytosis which we have not accounted for.

On the other hand we have negative blood cultures. They are not worth much. It is like fishing. You throw your fly a good many more times than you catch fish. The fact that you do not catch fish does not prove that there are not any there. Positive cultures have great significance. Negative cultures have no considerable significance. We have no evidence of embolism in the skin, retina or elsewhere. I never feel perfectly comfortable in making the diagnosis of acute endocarditis in the absence of positive cultures or embolism. On the whole I think we had better say that it was not there, although I am perfectly prepared to be shown wrong by the findings at the autopsy. Acute processes at his age are a good deal less common than they are earlier. The spleen I have to leave unaccounted for. In some cases of general passive congestion the spleen is felt. This is one that was. I have to leave it at that.

What should his kidneys show? They should be normal, aside from the sharing in the general passive congestion.

A PHYSICIAN: What about the blood pressure?

DR. CABOT: It was increased I think because of the hypertrophy of the left ventricle associated with the aortic regurgitation. We have aortic regurgitation. There is compensation for that. The left ventricle hypertrophies. The left ventricle being hypertrophied shoots the blood into the aorta and gives you a high systolic followed by a low diastolic pressure on account

of the regurgitation. I do not think we have to account for that in any other way.

A PHYSICIAN: How about the Wassermann test?

DR. CABOT: I think it is a good rule on the whole that in the absence of a history clearly pointing to syphilis or lesions anywhere in the body pointing to syphilis, one had better not make a diagnosis on the Wassermann, especially on a weakly positive Wassermann. Dr. Mallory, I believe, will not show us any evidence of syphilis. That does not prove that the patient did not have it at some time.

A PHYSICIAN: What was the electrocardiogram in this case?

DR. CABOT: It was normal except for fibrillation.

A PHYSICIAN: What are your ideas on the coronary arteries?

DR. CABOT: I do not see that we have any reason to accuse them. On the basis of the facts given us they should be normal.

A PHYSICIAN: Is not the history of repeated miscarriages rather striking in suggesting syphilis?

DR. CABOT: Yes, it has that suggestion. On the other hand when we are aware of the many other causes of miscarriages we should not weigh that very heavily.

Has any gentleman any supplementary or alternative diagnosis to offer?

A PHYSICIAN: Why not a secondary infection with pneumonia? The chest was not examined on account of dyspnea. There are many points in favor of pneumonia.

DR. CABOT: That is perfectly good reasoning. The only difficulty is that any case that dies is quite likely to have some pneumonia if you look carefully for it. I think the important question is, did pneumonia (if he had it) play an important part in his death? I should say it did not. The suggestion is good, but I think we have no more reason for supposing pneumonia than we have in almost any case that dies after a chronic illness. If you say in every chronic case ending in death that there is pneumonia you will come out right almost fifty per cent of the time.

A PHYSICIAN: What is the Hinton test?

DR. CABOT: A substitute for the Wassermann. We use it here a great deal. It is a little more delicate than the Wassermann.

I will repeat what I take to be your diagnosis. I am assuming that you vote for the rheumatic type of heart trouble with deformity of the aortic valve producing a good deal of insufficiency and some stenosis, with a slight degree of deformity of the mitral valve, not sufficient to produce a considerable stenosis; marked hypertrophy of the left ventricle and some of the right on general principles, the heart weighing more than 500 grams probably; passive congestion of the lungs and other organs; no evidence of acute endocarditis or chronic pericarditis. I will not say more about pneumonia. It is just as good a chance one way or the other. I will bet on the whole there will not be pneumonia. I know of nothing else of importance in the case.

A PHYSICIAN: Is there any trouble with the bundle of His?

DR. CABOT: I see nothing pointing to it.

A PHYSICIAN: I should consider subacute bacterial endocarditis with the enlarged spleen, the high leukocyte count and fever.

DR. CABOT: I am glad to get somebody on record for that. I am betting against it.

X-RAY INTERPRETATION

The examination shows evidence of enlargement of the left side of the heart and dilatation of the auricles. There is also some evidence of dilatation of the root of the aorta. The changes in the lungs are probably of cardiac origin. The findings are rather more those of luetic than of rheumatic heart disease.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Rheumatic heart disease.
Aortic regurgitation.
Congestive failure.

DR. RICHARD C. CABOT'S DIAGNOSIS

Rheumatic heart disease with marked aortic insufficiency and some stenosis and slight deformity of the mitral valve but little if any stenosis.
Marked hypertrophy of the left ventricle and some of the right ventricle.
Chronic passive congestion of the lungs and other organs.

ANATOMIC DIAGNOSES

Rheumatic endocarditis.
Syphilitic aortitis with aortic regurgitation.
Chronic passive congestion.

DR. TRACY B. MALLORY: This man showed an enormously enlarged heart weighing somewhat over 800 grams. There was a rheumatic heart disease, as was shown not by any valvular involvement, but by an extreme degree of rheumatic myocarditis. I have never seen a heart of an adult person showing as marked myocarditis as this one did. There was of course an aortic regurgitation present, but it was not due to deformity of the valve but to dilatation of the aortic ring. Sections through the base of the aorta at this point show typical syphilitic aortitis. The circumference of the ring measured slightly over eleven centimeters in diameter, more than the circumference of the mitral valve. None of the valves showed any intrinsic lesions.

We were limited in our examination to removal of the organs of the chest and merely palpation of the abdominal organs. The lungs in

gross showed no pneumonia. Microscopically an occasional alveolus with fibrinous exudate in it could be found. The pericardium contained about 300 cubic centimeters of fluid which probably accumulated in the terminal moments of his disease. The thoracic aorta showed some dilatation and a few scars which were quite suggestive of syphilis. Microscopic examination confirmed this impression. The coronary arteries were negative. The abdominal organs were all somewhat enlarged, gross evidence of passive congestion, but the spleen was not particularly big. I do not understand why it was palpated, and in fact almost wonder if it was.

It is difficult to decide whether syphilis or rheumatic heart disease was the more important factor in his death. My own guess, influenced by the unusually extensive and severe rheumatic myocardial involvement shown histologically, is that the myocarditis was directly responsible for the cardiac failure and that with the aortic leak alone he might have remained compensated for several to many years.

CASE 15302

DANGER OF BARIUM ENEMA EXAMINATION IN SUBSIDING DIVERTICULITIS

Surgical Department

A man aged forty-seven came into the hospital April 20 with the following history:

Three days before admission, after a long period of excellent health, he developed pain in the lower abdomen which he described as "like gas". It came on fairly rapidly, though not instantaneously, and was most pronounced in the midline. He said that he felt it also somewhat in both lower quadrants, a little more on the left. Just before the onset he had been doing a little light work. The pain persisted all night. The next day his family doctor suggested enemas, which brought partial relief, and he catheterized the patient but obtained no urine. However, no difficulty in passing water had been experienced by the patient. The pain steadily diminished and was practically gone after forty-eight hours. Some soreness had remained up to the time of admission and for that reason he came to the hospital.

Aside from the common children's diseases he had been operated upon eleven years previously for duodenal ulcer, a posterior gastro-enterostomy being performed. Since that time his health had been of the best, with no recurrence of ulcer symptoms. He had had no urinary symptoms of any sort, but had been constipated for several years, and had used some sort of laxative to secure one or two daily movements. There had never been any evidence of blood in the stools or any increase in constipation recently. The family history was negative. He was married but had no children.

Upon entrance examination the man did not appear very sick. He was well developed and nourished. Aside from his abdomen the findings were negative. He did exhibit considerable tenderness above the symphysis pubis, rather more toward the left than toward the right. No masses were felt and no muscle spasm. There was no distention. Rectal examination was negative save for some tenderness anteriorly above the prostate.

Temperature 100°, pulse 90, respirations 20.
Leukocytes 24,000.
Urine negative. Blood pressure 142/100.
An enema was given with fair results and no gross evidence of blood.

Discussion

BY E. PARKER HAYDEN, M.D.

The history in this case is clean cut and points to the onset of an acute abdominal condition of some sort in a man who for nearly eleven years had considered himself to be in excellent health. One naturally thinks straightway of acute appendicitis as the commonest acute inflammatory lower abdominal condition in a man. Although his tenderness was most pronounced in the midline and toward the left side, yet there was some tenderness in the right lower quadrant as well. A long appendix with inflamed tip extending well over to the midline might give this picture, but the tenderness seems too far away to make this likely. When an appendix ruptures and causes spreading peritonitis, the most tender point in the abdomen is likely to be the point overlying the peritoneum most recently involved, rather than over the appendix itself. But in this case there was no suggestion of peritonitis. The white count of 24,000 was rather high for acute appendicitis, especially with a temperature of only 100°, unless ruptured. The possibility of perforation of an ulcer was considered in view of the old history, but was dismissed by the physical findings. Meckel's diverticulitis was a possibility, but is of course uncommon, and in its symptomatology and physical findings resembles appendicitis so closely that it is practically impossible to differentiate the two.

The diagnosis was, then, reduced to a consideration of a possible perforation of the sigmoid with carcinoma, or acute diverticulitis. There had been nothing in the past history at all suggestive of the presence of carcinoma. Furthermore perforation of a carcinoma of the sigmoid, or the colon proximal to it, invariably results in a spreading peritonitis and usually in early death. Acute diverticulitis is encountered with reasonable frequency. In favor of this diagnosis was the location of the area of greatest discomfort at the left of the midline, and the patient's description of his discomfort as "like gas", suggesting peristaltic contrac-

tions against a partially obstructed area. Also the relief afforded by enemas was consistent with this diagnosis. Acquired diverticula were recognized as pathologic curiosities as early as 1858, but their importance as a clinical entity when acutely inflamed was not brought out until the studies of Beer in 1904, and by Brewer and Mayo in 1907. The latter two emphasized in papers read before the American Surgical Association the importance of acute diverticulitis in differential diagnosis of lower abdominal lesions. The important consideration is the decision whether or not to operate. If appendicitis, one should do so in most cases. If diverticulitis, operation is done only to drain an abscess after perforation. In this case we felt very sure the man did not have appendicitis and accordingly decided against immediate operation. The man was put to bed in moderate Fowler's position and morphia was administered.

SUBSEQUENT COURSE

His temperature reached normal in two days, the leukocyte count came down to 10,700, and his tenderness almost completely disappeared after several days. Four days after admission he was given a barium enema in an effort to establish the presence of diverticula. The report was as follows: "The colon fills readily. No definite defects were noted. There is no evidence of diverticula." At five a. m. two days later the patient suddenly complained of sharp abdominal pain in the left lower quadrant. There was marked tenderness over this area as well as high up anteriorly in the rectum. The temperature was 102.4°, the pulse 130, the respiration 24. There was also considerable abdominal spasm.

Operation was decided upon and performed about ten a. m. In spite of a negative X-ray, the history and physical findings pointed strongly to an acute diverticulitis with perforation.

OPERATION

Under ether anesthesia a mass could be felt lying beneath the left rectus muscle. An incision was made directly over this. Cloudy fluid was encountered upon opening the peritoneal cavity, and several loops of small bowel in the vicinity were adherent with a plastic exudate. An indurated sigmoid lay beneath, perforated near the attachment of its mesentery on the mesial side, and a small abscess cavity which had ruptured was encountered here. The walls of the bowel were too much indurated to permit closure of the perforation, consequently two cigarette drains were inserted to this area and the pelvis, and the abdomen was closed.

POSTOPERATIVE COURSE

The temperature dropped, the tenderness subsided, and drainage was profuse. Four days later he had severe diarrhea—ten to twelve stools—but this cleared up rapidly. The wound became rather septic, he developed a fecal fistula, and drainage continued profuse. The temperature fell but did not flatten out to normal, there being a rise to 100° daily for ten days, then up to 101° for another five days. The temperature then began to subside. Rectal examination however disclosed a pelvic abscess pointing in the rectum. On the 26th day after operation he was given spinal anesthesia with the idea of opening this abscess through the rectum. The abscess broke however during the preliminary finger examination. He then improved rapidly. The temperature straightway dropped to normal and remained so. He was sent back to his doctor eight days later with the pelvic induration practically gone and the abdominal wound granulating cleanly.

CONCLUSIONS

The presence of four days of entirely normal temperature after admission to the hospital makes it unlikely that any perforation occurred at the first attack. It would seem that the second acute attack, with perforation, though not coming until thirty-six hours after the barium enema, could quite reasonably be ascribed to the stirring-up incident to the injection of barium and the abdominal manipulation during fluoroscopy. From a theoretical standpoint, and particularly in view of the subsequent happenings in this case, it would be much safer to allow a lapse of two weeks or more after an acute attack before attempting definitely to settle the diagnosis. Furthermore this X-ray failed to show any diverticula, probably because they were already filled with exudate or so swollen that the barium failed to enter them.

Simple cleansing enemas, carefully given, would seem to benefit the inflammatory process by relieving the intracolonic pressure and clearing of feces the outlets of the diverticula. However, if it seemed quite evident that a free perforation was present there would be a real danger even in giving a simple enema.

NOTE BY DR. EDWARD P. RICHARDSON

I do not believe the perforation coincided with the attack of pain at five a. m. I think there was a small local abscess, whether dating from the first attack or the barium enema is impossible to say. It would be consistent with the latter. The pain I believe was associated with extension of this abscess and invasion of new peritoneum.

I should think it well to be conservative in regard to the use of barium enemas when diverticulitis is suspected, but sometimes I think diagnosis outweighs this consideration. To be consistent we should restrict the use of cleansing enemas as well.

DIAGNOSIS

Acute perforated diverticulitis of the sigmoid with abscess and local peritonitis.

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The Journal does not hold itself responsible for statements made by any contributor.

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A NEW ADVERTISING CENSORSHIP

IT is encouraging to those who have combatted the advertising evil, long and unsuccessfully, to see at last signs of awakening interest in the publishing industry itself. The opportunities for improvement are vast, and many of them are of so long standing as to be almost historic in interest. A long, long time ago Samuel Hopkins Adams exposed the quack medicine industry, and the Pure Food and Drugs Act made great progress, as far as its provisions allowed, in dealing with some of the worst of these evils; every year the American Medical Association exposes numerous others, and still a venal press fills its coffers at the cost of common decency. The health motif has now taken firm hold of the advertising business, for health, about which the average man knows so little, is a weak point in his armor and his credulity is pathetic.

Daily he is bombarded with the vitamins in certain breads, the health-giving spring in certain rubber heels, the refreshing sleep in certain mattresses. His teeth are polished by proxy, his pyorrhea is replaced by pep, his bodily emanations are discussed with a vulgar frankness which masquerades as sincerity; his halitosis is hailed from the house tops, and the most intimate details of feminine hygiene are spread covertly over the pages of our prominent magazines.

At last, however, the publishing industry itself is awakening to an appreciation of some of the grosser evils which prevail, and to which it has long lent itself. Publishers, in conference with the Federal Trade Commission, have agreed to censor voluntarily, advertising which is submitted to them, and have asked the National Better Business Bureau to aid by furnishing facts about copy which is submitted.

The first drive, it appears, is against drug, liquor and tobacco addiction cures, and a better field for reform activities could scarcely be found. We wish them well in their efforts; we will applaud their successes and condone their failures and give them all the support that is in our power, praying meanwhile that they will not confine their efforts to these frauds alone but will extend their scope until the quack patent medicine business has been wiped off the map. Then, if not before then, it will be time to attack the borderline health fakers who appear in the better classes of publishing society.

There should be no difficulty, if the reform is an honest one, in learning the facts about advertising copy, at least so far as medicines and cures are concerned. The American Medical Association has a vast fund of information and a staff of experts available, and every State Society and State editor will be eager to share in the housecleaning.

SOME TOXIC GASES TO BE STUDIED

WARNINGS have been voiced at the meetings of the American Medical Association in Portland, Oregon with respect to certain dangers incident to the use of methylchloride in refrigerating machines.

It was claimed by one writer that toxic encephalitis and possibly other diseases may be caused by the inhalation of this gas and a survey of toxic gases was recommended.

It was also claimed that there is a mild form of carbon monoxide poisoning which may be the cause of some forms of anemia, and which affects those exposed to low concentrations of this gas.

If these suggestions are valid it is certainly time that more should be known about the unseen danger of gases and the American Medical Association will add to its prestige by putting the facts before the public.

Many of our comforts may not be without serious dangers. Homes should be the safest places but even without these newer dangers the hazards of homes are already large, for statistics show that falls, burns and many other accidents in homes add materially to the death rate.

TWO IMPORTANT CIRCULARS

THE State Department of Public Health has issued two circulars which impose a certain responsibility on the medical profession. We do not mean to imply that any unreasonable demand is made of physicians but that it now becomes the duty of every doctor in the State to unite with the Public Health authorities in furnishing information with respect to the incidence of certain diseases for study as set forth in one of the circulars.

(State Seal)

THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH
State House, Boston

Dear Doctor:

In connection with our study of the chronic sick in Massachusetts, we are anxious to learn the volume of such patients throughout the State. Will you kindly fill out the following questionnaire and return at your earliest convenience?

We wish to thank you for any information which you may be able to give us.

Very truly yours,
GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

1. At the present time, how many cases of the following diseases are under your care? (Please omit all hospital and institutional cases and include all others under your care whether or not you have seen them recently.)

Cancer	Rheumatism	Tuberculosis
Heart Disease	Nephritis	Arteriosclerosis
Diabetes	Apoplexy	Cardio Vascular Renal

2. Is there need for additional hospital facilities for any of these types of patients and if so, for which disease?

3. If there is need, should it be additional beds in existing hospitals or new hospitalization?

4. At the New England Health Institute which meets in Boston April 14th to 18th, 1930 a special clinic session for physicians will be held. Which of the following subjects would interest you?

Cancer	Gonorrhea	Heart Disease
Tuberculosis	Arthritis	Prenatal
Syphilis	Diabetes	Nutrition and well child

Other subjects (please list)

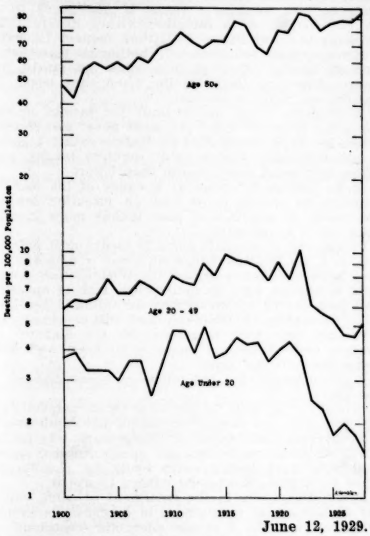
Name .....
Address .....

The first edition of the other circular which carried a message of hope to every diabetic, according to the reading on the first page would seem to have been sent out by Dr. Joslin. This circular was prepared by the State Department and Dr. Joslin's name should have been omitted from the outside. The corrected circular is appended.

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH
PREVENTION OF DIABETIC DEATHS

Massachusetts' record in regard to diabetes must be maintained and improved. The following letter and chart are of such interest that we are sending them to the doctors in the State. As a step in still further reducing this cause of death we are asking a few physicians competent to speak on this subject if they will be on call for addresses to medical groups. If any such group is interested in devoting a meeting to this subject we would be glad to help them obtain such a speaker.

DIABETES MELLITUS
By Age Groups
Massachusetts—1900-1929



June 12, 1929.

Dr. George Bigelow, Commissioner
Dept. of Public Health
State House
Boston, Massachusetts.

My dear Dr. Bigelow:

I take great pleasure in enclosing the mortality chart for Diabetes Mellitus by age groups in Massachusetts—1900 to 1928, compiled for me, out of hours, by Angeline D. Hamblen of your department. This chart is the most encouraging diabetic chart which has ever come to my attention.

From the chart you will see that diabetes under the age of 20 has almost disappeared from Massachusetts and that between the ages of 20 and 49 the mortality is lower than at any time in this century, whereas above the age of 50 there has been a gradual rise. As a matter of fact Miss Hamblen has demonstrated that this rise does not begin for men in Massachusetts until the age of 60, so that it is the women after the age of 50 who are chiefly responsible for the increasing death rate in Massachusetts.

Perhaps other states have done as well, but it is my impression that Massachusetts is a banner state in this regard. At any rate one of my patients was so impressed with the chart that he has placed at my disposal a fund to be used in promoting the treatment of Diabetes Mellitus in Massachusetts, so that this State will be a model for all the rest.

We physicians in Massachusetts can lower diabetic mortality still more, provided we attack diabetic coma. The Metropolitan Life Insurance Company has recently shown that 1044 fatal cases of diabetes reported to them this year up to April 15, coma was responsible for 433 deaths or 41 per cent.

It is really our own fault, therefore, that mortality from diabetes is not decreasing, because diabetic coma is always preventable and nearly always curable. As one of the best practitioners in the State

recently said, "Diabetes is a chronic disease, but doctors do not realize that it has acute manifestations."

Indeed, coma develops because of ignorance, negligence or carelessness. Diabetics go into coma carelessly when they break their diets and overeat; they go into coma as a result of negligence when in the course of an infection, either general like measles or local like a boil, they neglect to make the proper tests to determine whether they are using enough insulin; they go into coma ignorantly, because they stop their insulin when they cease to eat for one cause or another.

A diabetic should never omit his insulin unless his urine is sugar free. He must never forget that when he stops eating food he begins eating himself —his own body—and so still requires insulin and often very much more insulin than before.

If he has an infection as a cause of his loss of appetite he should know that an infection lowers the value of insulin and thus makes more insulin than usual a necessity.

Coma, and by diabetic coma is meant acid poisoning, is a sly fox and will steal away a diabetic before he or his friends suspect it. Within a few hours mild symptoms such as indigestion, lack of appetite and pain in the abdomen may be followed by difficult breathing, drowsiness and unconsciousness. The only safe way, therefore, for the diabetic to protect himself against coma is to keep well and sugar free all the time.

I try to instill into the minds of every diabetic I see that:

Whenever he feels ill and sick he should (1) call his doctor (2) go to bed (3) take a hot drink every hour (4) take an enema (5) keep warm (6) get a nurse or someone to care for him. Another good rule is to have boiled water ready for the doctor when he arrives in case he wishes to use it.

Minor differences in the treatment of coma exist, but all agree that promptness in diagnosis is everything and next to it comes energetic treatment at the earliest possible moment. If coma exists the doctor must give up everything else until the patient comes out of it. (1) Insulin is usually required every half hour in 10 to 40 unit doses or more, varying with the severity of the symptoms and if it is given intravenously it should always be given subcutaneously at the same time. (2) Dehydration of the patient must be overcome by the subcutaneous injection of normal salt solution and one cannot rely on fluids given by mouth or rectum. (3) The heart is almost always weak and needs stimulation with caffein sodio-benzoate, 7½ grains and this may be given every hour if need be, for three or four doses. On account of the weakness of the heart, salt solution must be injected very slowly if given intravenously. (4) With children and usually with adults the stomach is distended and unless evacuated prevents the subsequent retention of liquids such as, water, gruels, ginger ale or the juice of 2 or 3 oranges, in other words, carbohydrate amounting to 50 grams. Therefore, gently wash out the stomach.

If you think of any way in which my friend can co-öperate with you in bringing about further improvement in the treatment of diabetes in Massachusetts and particularly can aid in annihilating coma, please let me know.

Sincerely yours,
ELLIOTT P. JOSLIN.

Dr. Joslin's letter to the Department appears in the subsequent pages and if read by every doctor in the State and its instructions followed will reduce the number of deaths due to diabetic coma to the irreducible minimum. This low death rate will be confined to careless or ignorant diabetics.

Doctors no longer need to bear the blame of the mortality rate of diabetic coma for every diabetic patient should be warned of his danger by his adviser.

A stirring appeal appeared in the *Journal of the American Medical Association* for July 6 inst. giving the same instruction as that set forth in this circular.

We trust that the State Department of Health will have no cause to feel that the doctors are not co-öperating.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

EADES, M. F. A.B., M.D. Harvard 1922. Resident Physician, Boston Lying-In Hospital, Alumni Assistant in Obstetries, Harvard Medical School. Assistant in Gynecology, Boston University School of Medicine. His subject is: "Retinal Hemorrhages of the Newborn." Page 151. Address: 19 Bay State Road, Boston.

MEIGS, JOE VINCENT. A.B., M.D. Harvard 1919. F.A.C.S. Surgeon to Out Patient Department, Massachusetts General Hospital. Assistant Surgeon to Out Patient Department, Collis P. Huntington Memorial Hospital. Surgeon to Out Patient Department, Palmer Memorial Hospital. Surgeon, Pondville Hospital at Norfolk and the Vincent Memorial Hospital. Non-resident Visiting Surgeon, Burbank Hospital, Fitchburg. His subject is: "Adenocarcinoma of the Fundus of the Uterus: a Report Concerning the Vaginal Metastases of this Tumor." Page 155. Address: 264 Beacon Street, Boston.

MEAKER, SAMUEL R. A.B., M.D. Harvard 1915. M.R.C.S. (England). F.A.C.S. Associate Professor of Gynaecology, Boston University School of Medicine. His subject is: "The Fundamental Nature of Relative Sterility." Page 160. Address: 475 Commonwealth Avenue, Boston.

ROGERS, HORATIO. A.M., M.D. Harvard 1923. Assistant in Surgery, Out Patient Department, Massachusetts General Hospital. Assistant in Surgery, Harvard Medical School. Address: 264 Beacon Street, Boston. Associated with him is:

MILLER, RICHARD H. A.B., M.D. Harvard 1910. F.A.C.S. Assistant Professor of Surgery, Harvard Medical School. Associate Surgeon, Massachusetts General Hospital. Surgeon, House of the Good Samaritan. Address: 264 Beacon Street, Boston. Their subject is: "Surgical Diverticulitis." Page 162.

BALCH, FRANKLIN G. A.B., A.M., M.D. Harvard 1892. F.A.C.S. Consulting Surgeon, Massachusetts General Hospital; Lawrence Memorial Hospital, Medford. Surgeon, Faulkner Hospital, Jamaica Plain. Address: 279 Clarendon Street, Boston. Associated with him is:

BIGELOW, GEORGE H. A.B., M.D. Harvard

1916. Doctor of Public Health 1921, Commissioner of Public Health for Massachusetts. Address: State House, Boston. Associated with him is:

GREENOUGH, ROBERT B. B.A., M.D. Harvard 1896. F.A.C.S. Assistant Professor of Surgery Harvard Medical School. Director, Cancer Commission of Harvard University. Visiting Surgeon, Massachusetts General Hospital. Surgeon in Charge, Collis P. Huntington Memorial Hospital. Their subject is: "Report of the Graduate Course in Cancer." Page 165.

SAUNDERS, HARRY C. A.B., M.D. Medical School of Maine 1908. Adjunct Assistant Dermatologist, Bellevue Hospital. Attending Dermatologist, University and Bellevue Dispensary and French Hospital (Out Patient Department). Lecturer on Dermatology and Syphilology, University and Bellevue Medical College. Address: 161 W. 87th Street, New York City. Associated with him is:

RIORDAN, TIMOTHY J. M.D., Fordham University 1918. Instructor in Dermatology and Syphilology, University and Bellevue Medical College. Attending Dermatologist, University and Bellevue Dispensary. Address: 853 Seventh Avenue, New York City. Their subject is: "Cisternal or Suboccipital Puncture." Page 166.

STEVENS, NEIL C. B.A., M.D. College of Physicians and Surgeons, Columbia, 1915. Attending Physician, Glen Cove Hospital and Cornell Clinic, New York City. Instructor in Medicine, Cornell University Medical School. His subject is: "The Thyroid and Headache at the Menopause." Page 168. Address: Glen Cove, Long Island, New York.

BLACKFAN, KENNETH D. M.D. Albany Medical College, 1905. Professor of Pediatrics, Harvard Medical School since 1923. Chief of Medical Division of Infants' and Children's Hospital, Boston. Address: 300 Longwood Avenue, Roxbury, Mass. Associated with him is:

DIAMOND, L. K. A.B., M.D. Harvard, 1927. Research Fellow Department of Pediatrics, Harvard Medical School, 1927-28. Now House Officer, Infants' and Children's Hospital. Their subject is: "Diagnosis of Active Tuberculosis in Infants and Children." Page 170. Address: Children's Hospital, Boston.

STONE, JAMES S. A.M., M.D. Harvard, 1894. F.A.C.S. Consulting Surgeon, Boston Children's Hospital. His subject is: "Some Surgical Complications of Respiratory Infection." Page 172. Address: 264 Beacon Street, Boston.

MISCELLANY

CANCER DEATH RATE REPORTED TO BE RISING

In 1906 the death rate from cancer as recorded in fifty American cities was 71.6 per each 100,000 and in 1928 it had risen to 117.

San Diego had the highest rate of 214, Boston 153.5 with seven cities with ratios between those of San Diego and Boston. The New York rate was 128.8 which is above the average.

The general rate in the United States is lower than that of Great Britain, Switzerland, Austria or Denmark.

Hoffman finds that the mortality from cancer is greater among females than among males and the greatest number is due to cancer of the stomach followed by invasion of the liver and gall bladder and intestines in the order of mention above.

He believes that "by every standard of mortality investigation" it has been shown that the proportion of cancer to the population is rapidly increasing.

SUMMARY OF PROVISIONAL BIRTH, DEATH, AND INFANT MORTALITY FIGURES IN THE BIRTH REGISTRATION AREA: 1928

(Exclusive of Massachusetts and Utah, from which complete transcripts for 1928 Have not been received.)

Washington, D. C.—The Department of Commerce announces that for the birth registration area, exclusive of Massachusetts and Utah, the birth rate for 1928 was 19.7 as compared with 20.7 for 1927. In 33 of the 38 States for which figures for the two years are shown in the following table, the birth rates were lower in 1928 as compared with 1927. The highest birth rate in 1928 (27.5 per 1,000 population) is shown for North Carolina and the lowest (14.4) is for Washington.

The same States shown in the birth area have for 1928 a death rate of 12.3 as compared with 11.4 for 1927 and increases were reported in 36 of the 38 States. The highest 1928 death rate (14.5 each per 1,000 population) is shown for California and Mississippi and the lowest rate (7.4) is for Idaho.

The infant mortality rate for 1928 represents an increase as compared with 1927, the rates being 68.0 for 1928 and 64.6 for 1927. The highest infant mortality rate (142.2) is for Arizona and the lowest (46.9) for Oregon.

Infant mortality rates are shown for both years for 54 cities of 100,000 population or more in 1920. For 39 of these cities the 1928 infant mortality rates were higher than those of the previous year, the highest 1928 rate (99.3) being for Nashville, Tenn., and the lowest (42.7) for Seattle, Washington.

COLOR SCHEMES ON HOSPITAL WALLS

The question has been raised in an article taken from the Philadelphia Record respecting the color scheme of hospital walls. To some the monotony of white or some neutral tint has no effect but to many the glaring walls which reflect light are trying and although hospitals must of necessity eliminate dust collecting hangings and furniture there can be no objection to colors of ceilings and walls which are not irritating to sensitive persons.

Simple stenciled patterns on tinted walls might relieve the effect of some hospital walls without much expense.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1928 AND SEVEN YEAR AVERAGE MONTH ENDING JULY 6

DISEASES	1929					1928			
	Wk. ending June 15	Wk. ending June 22	Wk. ending June 29	Wk. ending July 6	Average cases reported for week corresponding to July 6 for past seven years	Wk. ending June 16	Wk. ending June 23	Wk. ending June 30	Wk. ending July 7
Cerebrospinal Men.	2	1	1	1	1	-	1	1	1
Chickenpox	78	61	69	28	27	37	61	33	17
Conjunctivitis Inf.	1	-	-	-	-	-	-	-	-
Diphtheria	15	20	29	10	20	14	15	13	9
Encephalitis Epid.	-	1	-	-	-	1	-	-	-
German Measles	104	76	47	15	6	32	26	5	5
Influenza	2	1	1	-	2	1	2	1	1
Malaria	-	-	1	-	1	1	-	-	-
Measles	154	152	49	49	128	289	293	247	294
Mumps	37	32	10	20	17	75	81	25	34
Paratyphoid Fever	-	1	-	-	-	1	-	-	2
Pneumonia (Broncho)*	21	9	9	10	13	20	12	20	14
Pneumonia (Lobar)	22	16	8	10	10	24	20	26	7
Poliomyelitis	-	-	2	-	-	1	1	1	1
Scarlet Fever	40	25	16	18	29	27	30	27	18
Septic Sore Throat	-	2	-	2	-	-	1	-	-
Smallpox	-	-	-	-	1	-	-	1	-
Tetanus	-	-	2	-	-	2	-	-	1
Tuberculosis (Pul.)	43	22	30	17	22	43	29	31	28
Tuberculosis (O.F.)	1	-	8	-	3	10	7	10	1
Typhoid Fever	-	3	-	3	5	-	1	2	-
Whooping Cough	24	16	24	35	51	117	91	101	115
Gonorrhoea	31	37	21	23	15	26	27	31	17
Syphilis	39	45	39	25	23	35	49	77	26

* Made reportable January 1, 1925.
** Made reportable July 1, 1928

REMARKS: No cases of Asiatic cholera, Glanders, plague, rabies in humans and yellow fever during the past seven years.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS, JUNE, 1929

GENERAL PREVALENCE

The total number of cases of communicable diseases in June was not unusual.

The incidence of chicken pox was the highest for any June on record.

Twenty-two cases of typhoid fever were reported for the month, which is the second lowest figure for any June in the history of the Department.

Septic sore throat was reported forty times, eleven of these cases were connected with the Charlton outbreak.

The reported incidence of diphtheria, lobar pneumonia, scarlet fever, tuberculosis pulmonary and whooping cough was within endemic limits.

The incidence of anterior poliomyelitis and measles was relatively low.

The reported incidence of influenza, mumps, tuberculosis, other forms, gonorrhea and syphilis was normal.

RARE DISEASES

Anterior Poliomyelitis was reported from Boston, 1; Mansfield, 1; Merrimac, 1; Pittsfield, 1; total, 4.

Dysentery was reported from Boston, 1; total, 1.

Encephalitis lethargica was reported from Haverhill, 1; Lowell, 1; total, 2.

Epidemic cerebrospinal meningitis was reported from Boston, 6; Clinton, 1; Holyoke, 1; Lawrence, 2; Lynn, 1; New Bedford, 1; Westfield, 2; Worcester, 5; total, 19.

Malaria was reported from Arlington, 1; Chelsea, 3; total, 4.

Septic sore throat was reported from Amherst, 1; Boston, 13; Cambridge, 2; Charlton, 10; Lynn, 2; Medford, 1; Methuen, 3; Plymouth, 1; Westfield, 4; Winchester, 2; Worcester, 1; total, 40.

Smallpox was reported from Taunton, 3; Whitman, 3; total, 6.

Tetanus was reported from North Adams, 1; Randolph, 1; total, 2.

Trachoma was reported from Boston, 6; Cambridge, 1; Lawrence, 1; New Bedford, 1; total, 9.

Trichinosis was reported from Brockton, 1; total, 1.

MONTHLY REPORT OF CERTAIN COMMUNICABLE DISEASES.

	Cases in Entire Population				Case Rates per 100,000 Pop.		
	June 1929	June 1928	Prosodemic Index	Epidemic Index	June 1929	June 1928	Expected Rate***
ALL CAUSES	7546	7205		-	172.3	166.6	-
Ant. Poliomyelitis	4	7	11*	.4**	.1	.2	.3
Diphtheria	271	261	214*	1.2**	6.2	6.0	4.9
Measles	2138	2917	4562*	.5**	48.8	67.4	104.1
Pneumonia, Lobar	214	305	205*	1.0**	4.9	7.1	4.7
Scarlet Fever	649	788	758*	.9**	14.8	18.2	17.3
Tuberculosis, Pul.	401	434	534*	.8**	9.2	10.0	12.2
Typhoid Fever	22	34	26*	.8**	.5	.8	.6
Whooping Cough	728	517	897*	.8**	16.6	12.0	20.5
Chicken Pox	957	568	-	-	21.8	13.1	-
German Measles	126	53	-	-	2.9	7.4	-
Gonorrhea	366	322	-	-	8.4	1.2	-
Influenza	11	98	-	-	.3	2.3	-
Mumps	429	439	-	-	9.8	10.2	-
Syphilis	139	106	-	-	3.2	2.5	-
Tuberculosis, O.F.	83	78	-	-	1.9	1.8	-

* This Index is an attempt to estimate the number of cases based on the trend during the past years which can be expected to occur, and is for the purpose of comparison with the number of cases which actually did occur.

** This ratio expresses how prevalent the disease is compared with the index mentioned above; 1.0 indicates that the actual number of cases equals the expected number. A larger number means a greater prevalence, and a smaller number a lesser prevalence than expected. Thus, 2.0 would indicate twice the expected number of cases, and .5 half the expected number of cases. The method used to determine the indices is described in the August 18, 1927 issue of the Boston Medical and Surgical Journal.

*** Calculated from the Prosodemic Index.

AGE INCIDENCE OF COMMUNICABLE DISEASES OF CHILDREN

Data from a number of sources on the percentage of children of specific ages who gave a history of a past attack of certain of the common communicable diseases of children were combined by investigators of the U. S. Public Health Service, to secure an average percentage who have been attacked. The diseases included were measles, whooping cough, mumps, chicken-pox, scarlet fever, and diphtheria. Although there is considerable variation in the age incidence of these diseases in different localities, the data at hand did not seem sufficiently accurate to make it worth while to study anything but the average of all communities combined. In data of this kind there are fairly large errors, not only those due to sampling but errors of observation such as those due to forgotten attacks, which would presumably become increasingly important as age increases. Nevertheless, it appears that the data are a fairly accurate and complete record of the proportion of the population that is attacked by these diseases. The data considered in this study are chiefly from urban communities of moderate size, but they include some distinctly rural areas.

By the time adult ages have been reached nearly 90 per cent. of persons have been attacked by measles, from 75 to 80 per cent. by whooping cough, from 70 to 75 per cent. by mumps, from 50 to 60 per cent. by chicken-pox, and from 10 to 15 per cent. by scarlet fever. From 10 to 15 per cent. have suffered clinical attacks of diphtheria, but as many as 60 per cent. give a negative Schick reaction, indicating an immunity to diphtheria.

From these percentages who have been attacked, which may be considered as representing an accumulation of cases in a hypothetical population observed from birth to adult ages, may be secured an approximation of the incidence of these diseases at specific ages. The maximum incidence varies from about 3 years for diphtheria to about 8 years for mumps. After the maximum is reached, the rates in every case decline rapidly as age increases.

From the same data it was possible to secure an approximation of the incidence of these diseases among children of specific ages who have not previously suffered a recognized and remembered attack and, therefore, in the absence of immunity from some other source, may be considered relatively susceptible. The maximum incidence of measles, whooping cough, chicken-pox, and scarlet fever among children who have not previously been attacked and the maximum incidence of diphtheria among children of a positive Schick test occurs at about 6 years of age. It appears that, on the average, children who have not suffered attacks of these diseases prior to school entrance are more likely to be attacked during their first school year than at any other time.

After the maximum, the incidence rates among children who have not previously been attacked decline considerably as age increases, although the relative decline is not as rapid as in the instance of the rate among all children. Apparently this decline could be due either to the development of immunity or to a change in contact or both.

Some children counted as relatively susceptible because they report no prior attack may be immune to these diseases: (a) It may be that some children develop a specific immunity without having an attack of the disease, as in the case of Schick negative children who have not suffered an attack of diphtheria; (b) as age increases, children may develop a more or less general immunity to infections of this type, which partially protects them from attacks; (c) immunity may have been acquired by mild unrecognized or forgotten attacks; (d) some children may have from birth a natural immunity to some of these diseases.

The frequency and intimacy of contact with cases of these diseases may decrease to some extent as age increases.

Death rates were computed for children of specific ages in the registration area of the United States for the period 1917-1923. With the exception of diphtheria the maximum death rate in every instance comes at an earlier age than the maximum case rate.

By relating the death rate and the case rates an approximation of the case fatality of these diseases is secured. In every instance the maximum fatality occurs under 1 year of age. The fatality of measles, whooping cough, and mumps declines to an almost negligible percentage by 5 years of age, but the decline for scarlet fever and particularly diphtheria is by no means as great as in the case of the other three diseases.

INQUIRY CONDUCTED IN TENNESSEE SHOWS GOITER PREVALENCE

Endemic goiter, or enlargement of the thyroid, is more frequent among negro than white children in Tennessee, the Public Health Service announced July 3 in a statement summarizing the results of a thyroid survey it conducted in that State.

Nutritional and economic factors may be responsible for the greater incidence of endemic goiter among negro cridren, said the statement. The results of the survey showed 4,876 thyroid enlargements of all degrees, representing a percentage of 19.4 among the 25,148 children examined. The full text of the statement follows:

The results of a thyroid survey made by the Public Health Service in Tennessee have been announced. This thyroid survey included 9,073 white boys, 11,120 white girls, 1,739 colored boys and 3,196 colored girls, attending the senior and junior high schools and upper grades of the summer schools in 40 localities.

A total of 4,876 thyroid enlargements of all degrees, representing a percentage of 19.4, was noted among the 25,148 children examined.

Thyroid enlargements of all degrees prevailed among the white boys to the extent of 9.5 per cent. and among the white girls to the extent of 23.5 per cent.

STATISTICS FOR WHITE BOYS

Among the 9,073 white boys examined, 90.5 per cent. of the thyroids were classified as normal, 7.7 per cent. as very slightly enlarged, 1.5 per cent. as slightly enlarged, and 0.2 per cent. as adenomatous. There were but four moderate enlargements, a percentage of 0.04.

Among the 11,120 white girls examined 76.5 per cent. were regarded as normal, 15.1 per cent. as very slightly enlarged, 7.2 per cent. as slightly enlarged, and 0.56 per cent. as moderately enlarged.

Among the 1,759 colored boys examined, 84.6 per cent. of the thyroids were normal, 12.2 per cent. were very slightly enlarged, and 2.6 per cent. were slightly enlarged. Only three moderately sized enlargements, a percentage of 0.17, were noted.

Higher percentages of thyroid enlargements were recorded among the 2,196 colored girls examined in 33 localities. In this group 64.5 per cent. of the thyroids were normal, 19.5 per cent. were very slightly enlarged, 13.7 per cent. were slightly enlarged, 1.7 per cent. were moderately enlarged, and 0.5 per cent. were adenomatous in character. The existence of one marked thyroid enlargement was also recorded.

Endemic goiter is more frequently encountered among the colored than among the white children in Tennessee.

CAUSES ARE EXPLAINED

Nutritional and economic factors may be responsible for the greater incidence of endemic goiter among the colored children.

The incidence of endemic goiter is greater in eastern Tennessee than in either the central or western portions of the State.

In Tennessee, as in other States surveyed, thyroid enlargements decrease in number among the boys after 14 years of age. Among the white girls in Tennessee there is a slight decline in goiter incidence after the age of 15. However, among the colored girls there is a maintained increase of incidence up to the age of 18 years.

There appears to be no relationship between the amount of endemic goiter and the sources, treatment, and ultimate safety of public water supplies in Tennessee.

There is a slightly larger incidence of endemic goiter among the users of chlorinated drinking water in Tennessee than among the consumers of unchlorinated water.—*N. Y. Times.*

OXYGEN IN PNEUMONIA

Probably most physicians in general practice have prescribed oxygen in the severe cases of pneumonia. Its employment is appealing to the friends of patients and theoretically it should be a valuable adjunct to other forms of treatment. As formerly used the results were more often disappointing than encouraging. Some have doubted the advisability of using oxygen in pneumonia because of lack of evidence of its benefits.

Recently more interest has been shown in this remedy and claims for its efficacy are being set forth as shown by a plea for the installation of an oxygen chamber in the Babies' Ward of the New York Post Graduate Hospital.

The first oxygen room was constructed at the Rockefeller Institute and reports indicate the advantages incident to the administration of oxygen in a chamber containing the desired mixture.

It has been claimed that the tent method employed in the Babies' Ward has shown excellent results and it is believed that a properly constructed chamber will be more efficacious.

The difficulty of giving oxygen to a cyanotic and restless child, by the older intranasal tube or mask method, is appreciated by those who have tried it.

FIRST INTERNATIONAL CONGRESS ON MENTAL HYGIENE

Progress is being made in the organization of The First International Congress on Mental Hygiene, to be held in Washington, D. C., May 5-10, 1930. Educators, psychiatrists, other physicians, public officials, social workers, industrialists and many others from all over the world are expected to be present when the Congress convenes.

Herbert C. Hoover has honored the Congress by accepting the position of honorary president. Already twenty-six countries are represented on the Committee on Organization, of which Dr. Arthur H. Ruggles, of Providence, R. I., is chairman. Dr. William A. White, of Washington, D. C., is president of the Congress, and Clifford W. Beers is Secretary-General. The Congress is being sponsored by mental hygiene and related organizations in many countries.

Questions to be discussed at the Congress will include the relations of mental hygiene to law, to hospitals, to education, industry, social work, delinquency, parenthood and community problems. A world-wide view of mental hygiene progress will be given. The subject will be discussed also in specific application to the maladjustment problems of individuals, special attention being probably given to childhood, adolescence and later youth. It is the contention of those promoting the Congress that mental hygiene has to do with the conservation of mental health in general, not merely with nervous and mental diseases. The point of view of clinical diagnosis and treatment will be considered, as well as that of administration of institutions and agencies.

Basic expenses of the Congress are being underwritten by the recently organized American Foundation for Mental Hygiene. Opportunity will be afforded for acquaintance among delegates of the various countries, and translations, together with other conveniences, will facilitate comprehension of all that may be said in unfamiliar languages. Administrative headquarters have been opened at 370 Seventh Ave., New York City, where John R. Shillady, Administrative Secretary, is in charge. A membership fee of $5 (including the Proceedings) has been fixed.

WEEKLY HEALTH INDEX

SUMMARY

Telegraphic returns from 61 cities with a total population of twenty-nine million for the week ending July 6, indicate a mortality rate of 10.2 as against 11.7 for the corresponding week of last year. The highest rate (17.9) appears for Birmingham, Ala., and Memphis, Tenn., and the lowest (6.1) for Somerville, Mass. The highest infant mortality rate (161) appears for Nashville, Tenn., and the lowest for Fall River, Mass., New Bedford, Mass., San Diego, Calif., Springfield, Mass., and Yonkers, N. Y., which reported no infant mortality.

The annual rate for 61 cities is 14.3 for the twenty-seven weeks of 1929, as against a rate of 13.8 for the corresponding weeks of 1928.

Telegraphic returns from 65 cities with a total population of thirty million for the week ending July 13, indicate a mortality rate of 11.2 which is the same as the rate for the corresponding week of last year. The highest rate (22.8) appears for Nashville, Tenn.,

and the lowest (6.0) for Yonkers, N. Y. The highest infant mortality rate (219) appears for Knoxville, Tenn., and the lowest for Albany, N. Y., Duluth, Minn., New Haven, Conn., Tacoma, Wash., and Wilmington, Del., which reported no infant mortality.

The annual rate for 65 cities is 15.8 for the twenty-eight weeks of 1929, as against a rate of 13.7 for the corresponding weeks of 1928.

SAVING THE BABY'S EYESIGHT

The proportion of children entering schools for the blind who lost their sight because of ophthalmia neonatorum (babies' sore eyes), has been greatly reduced during the last 20 years. The National Society for the Prevention of Blindness ascribes this to the measures which have been taken, either by law or by health-department regulation, in 44 States and 3 Territories requiring or urging the use of a prophylactic in the eyes of the new-born, the prophylactic being supplied free to doctors and midwives in all but 12 States and 1 Territory; 30 States make provision on the birth certificates for reporting its use. —*Excerpts from Bulletin, Children's Bureau.*

TWO STATES TO HAVE IMPROVED PUBLIC HEALTH AND MEDICAL SERVICE

The Commonwealth Fund Organization has announced a plan for improving public health service and medical practice in two states to be selected where there is a large proportion of rural districts.

The plan is to have field squads consisting of a physician and a nurse acting under state health officers.

The Commonwealth Fund plans to match local health appropriations in those places where the methods are approved.

In order to promote the training of physicians for rural practice fifteen post-graduate fellowships will be awarded annually to enable studies to be prosecuted in Class A Medical Schools.

Scholarship loan funds will be provided for a number of undergraduate medical students who intend to follow rural practice.

NEW MARINE HOSPITALS

Nine million, one hundred and seventy-five thousand dollars have been allotted by the Government to erect new marine hospitals for Cleveland, Detroit, San Francisco, New Orleans, Philadelphia, New York, Baltimore and Seattle.

The new hospitals will be of modern and permanent construction to replace buildings which were admittedly more or less temporary at the time of building.

Each hospital will have facilities for treating many beneficiaries other than seamen.

NOTES FROM THE SALEM HEALTH CAMP

The committee of the Salem (Mass.) Health Camp, headed by Mrs. Ralph B. Harris, is now working energetically to provide the many needs of the children who are spending the eight weeks of summer at Salem Willows, in an effort to gain weight and ward off disease. The boys and girls range in age from five to fourteen years.

Many of the children have gained three pounds during the past two weeks. The meals are provided under the direction of Miss Eleanor Yoffa of Framingham. The dinner is sent daily by the Salem board of health thus providing a nutritious noon meal for the youngsters.

Miss Grace Batchelder of Peabody, who has charge of the occupational therapy at the camp, is now instructing the youngsters in basketry. Bean bags, baskets, door stops, animal cut-outs and bird houses are all in the process of construction. Once each day the children go in bathing and are instructed in the rudiments of swimming.

All of the materials made by the children will be exhibited at the end of the camp season when the annual entertainment is held.

RECOGNITION OF THE WORK OF DR. ERNEST FUCHS

In recognition of "the most outstanding achievement in the prevention of blindness and the conservation of vision," Dr. Ernest Fuchs, of Vienna, Austria, will be awarded the Leslie Dana Gold Medal for 1929, it was announced recently by Lewis H. Carris, managing director of the National Society for the Prevention of Blindness. The presentation will be made at the International Ophthalmological Congress in Amsterdam, Holland, September 10, by Dr. William H. Luedde, of St. Louis, director of the Prevention of Blindness Department of the Missouri Association for the Blind, through which the medal is offered annually by Mr. Leslie Dana, also of St. Louis.

"In selecting Dr. Fuchs, there was a departure for the first time from the usual custom of considering only Americans for this honor," said Mr. Carris. "Dr. Fuchs chartered the way for all prevention of blindness work accomplished throughout the world in the last 45 years; he did this when he won the prize at the Fifth International Congress for Hygiene at The Hague in 1884 with his essay on 'The Causes and Prevention of Blindness.' Dr. Fuchs was a professor of ophthalmology in the University of Liege at that time; he has been distinguished in his profession for more than half a century.

The re-election of William Fellowes Morgan, of New York City, as president of the National Society for the Prevention of Blindness, was also announced recently by Mr. Carris. Other officers who were re-elected by the executive committee to serve until July 1930 are: Dr. Park Lewis, of Buffalo, N. Y., first vice-president; Russell Tyson, of Chicago, second vice-president; and George Blagdon, of New York City, treasurer.

The subject of prevention of blindness is now receiving attention from numerous quarters throughout the world, according to Mr. Carris, such as the Child Welfare Committee and the Health Committee of the League of Nations, the League of Red Cross Societies, the International Ophthalmological Congress, the International Labor Office, and others. A conference of all the forces engaged in the work of preventing blindness and conserving vision in America will be held in St. Louis, Mo., November 11-13. This conference will be attended by public health officials, oculists, safety engineers, illuminating engineers, educators, research workers, social workers and others.

THE CURE OF TUBERCULOSIS

Aside from the established and approved treatments of tuberculosis, claims for valuable remedies for this disease are published from time to time.

The latest is reported from Berlin and is endorsed by Professor Sauerbruch.

This treatment is almost entirely dietary and has been advocated by Dr. Gerson of Bielefeld, Westphalia who claims that foodstuffs rich in albumens and fats with the elimination of common salt in place of which combination of potassium and magnesia under the designation of "mineralogen" are efficacious.

Raw salads, vegetables and fruit are given freely.

The claim is made that many hopeless cases even of ten years' duration have been cured under this regimen within a few months.

CONFERENCE ON CHILDREN'S HEALTH

President Hoover has announced that he will call a national conference on the health and protection of children following the precedent set by President Roosevelt in 1909.

This conference will be held at the White House. In addition to Secretary Wilbur and H. E. Barnard, those invited to join a committee to plan the conference include Dr. H. J. Crumbine, director of American Child Health Association; Surgeon General Hugh S. Cumming of the Public Health Service; Miss Grace Abbott, chief of the Children's Bureau; William F. Green, president of the American Federation of Labor; Dr. Leo K. Frankel of the Metropolitan Life Insurance Company; Henry Breckenridge, Mrs. Louis F. Slade, Dr. William F. Snow of the National Health Commission, Mrs. Raymond Robins, Bailey Burritt of New York, Dr. W. F. King, Health Commissioner of Indiana, and Judge Frederick P. Cabot of the Juvenile Court of Boston.

The conference will not be held for several months in order that advance study of the facts, and experiences of the organizations may be made.

METHYL CHLORIDE BARRED IN CHICAGO

The deaths of three persons from poisoning by methyl chloride gas have led to action by the Commissioner of Health of Chicago thereby ordering the elimination of methyl chloride in refrigerators. This action is in anticipation of an ordinance which will permanently prohibit the use of this poisonous agent.

Several other deaths and about twenty-five poisonings in Chicago are believed to have been due to this gas.

Manufacturers of apparatus using this gas were asked to notify those having such refrigerators of the dangers involved.

THE PAY OF HEALTH OFFICERS

The notoriously inadequate salaries provided for physicians in Health Departments has led to a report by Dr. Linsly R. Williams, Director of the New York Academy of Medicine, on medical service in municipal departments in which Dr. Williams advocated better service and larger salaries. He felt that the work of health officers is not appreciated and that the salaries should attract high-grade men.

Dr. Wynne in discussing this subject stressed the danger of employing poorly paid doctors. This subject should receive the attention of all who are interested in this most important public service.

A MEMORIAL WARD FOR THE BEVERLY HOSPITAL

A fully equipped ward has been given to the Beverly Hospital by Mr. and Mrs. Philip Sears in commemoration of David Sears which will be used for the care of children. Their son, David Sears, was the recipient of especial care by those connected with the hospital. This children's ward has been needed for a considerable time and will add very much to the usefulness of the hospital.

THE PRENDERGAST HEALTH CLUB

Seventeen girls who have been guests at the Prendergast Preventorium have organized The Prendergast Health Club, the first meeting having been held July 18, 1929. Miss Ruth Johnson is the president, Miss Emma Elliot is vice president and Mrs. Dorothy Edwards, who is the follow-up worker of the Boston Tuberculosis Association, is the secretary.

Advice on the value of rest during the day and early going to bed was given by Mrs. Edwards.

This club is for girls who have been at the Camp and who wish to maintain contact with it and carry on the health principles taught there.

A QUESTION FOR MAYOR NICHOLS

The Boston City Council plans to ask his Honor Mayor Nichols if he has carried out the Medical Board's suggestion for more nurses at the City Hospital according to statements published in the papers. The Council also plans to present certain recommendations based on the Medical Board's report.

MASSACHUSETTS REGISTRATION AT THE AMERICAN MEDICAL ASSOCIATION MEETING

The *American Medical Association Daily Bulletin* issued in connection with the Eightieth Annual Session recently held in Portland, Oregon reports the following registration from Massachusetts:

Allen, Arthur W., Boston
Allison, Nathaniel, Boston
Austin, James C., Spencer
Barrett, Edward W., Medford
Barnes, Frederick R., Fall River
Burnham, J. F., Lawrence
Cattell, Richard B., Boston
Cody, E. F., New Bedford
Copeland, Lena Wallace, Brockton
Crofts, Nicholas M., North Adams
Donaldson, J. Frank, Salem
Drury, Dana W., Boston
Ehrenfried, Albert, Boston
Emerson, Paul M., Boston
Fitz, Reginald, Brookline
Friedman, Eli, Boston
Gardner, Edwin D., New Bedford
Greenwood, Arthur M., Boston
Hoffman, Frederick L., Wellesley Hills
Hoskins, R. G., Boston
Jordan, Sara M., Boston
Lahey, Frank H., Boston
Lancaster, Walter B., Boston
Landesman, Henry M., Boston
Lane, C. Guy, Boston
Macomber, Donald, Boston

Mahoney, Stephen A., Holyoke
Means, Paul H., Cambridge
Miller, Richard H., Boston
Mongan, C. E., Somerville
Mosher, Harris P., Boston
Murphy, William P., Boston
Overholser, Winfred, Wellesley Hills
Quinby, William C., Boston
Richards, George L., Fall River
Richards, Lyman G., Boston
Ritvo, Max, Boston
Robey, William H., Boston
Schall, Leroy A., Boston
Stetson, H. G., Greenfield
Truesdale, Philemon E., Fall River
Viets, H. R., Boston
Young, Albert G., Cambridge

NEW ENGLAND REPRESENTATION IN THE 1929 SESSION OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION

Connecticut
Walter R. Steiner, Hartford
John E. Lane, New Haven

Maine
L. P. Gerrish, Lisbon Falls

Massachusetts
H. G. Stetson, Greenfield
C. E. Mongan, Somerville
J. F. Burnham, Lawrence
W. H. Robey, Boston
E. F. Cody, New Bedford
P. E. Truesdale, Fall River

Rhode Island
H. DeWolf, Providence

Vermont
James N. Jenne, Burlington

Dr. Mongan is Chairman of the Committee on Legislation and Public Relations. Dr. Steiner is a Member of the Committee on Amendments to the Constitution and By-Laws and Dr. Burnham is a Member of the Committee on the Monumental Building.

AN ADDITION TO THE QUINCY HOSPITAL

The contract for the addition to the Quincy (Mass.) Hospital has been awarded. The cost will be $198,000. This addition is to be a three-story brick structure with accommodations for 103 beds. It is expected that the building will be completed by January, 1930.

HOSPITALS WHICH WILL BE BUILT BY THE PUBLIC HEALTH SERVICE

Plans are in preparation for a hospital of 560 beds at New Orleans at a cost of $2,000,000 on the present site of the Marine Hospital.

Authorized by the act of March 5, 1928 appropriating $75,000, a four-story building will be erected in Philadelphia for an emergency ward, ambulance station, dental service, clinical and x-ray laboratories and other facilities for a well-equipped out patient office.

Under the provision of the act of May 29, 1928 a Marine Hospital will be built at Galveston, Texas at a cost of $740,000.

Provisions for a 600-bed hospital as an addition to the present hospital at Stapleton, New York have been made by the act of March 4, 1929.

Under the act of March 4, 1929 the Public Health Service has authority to construct a $1,620,000 hospital for 325 patients at Baltimore, Maryland.

A tentative allocation has been set up for the construction of a 200-bed marine hospital at Seattle. Many more hospital projects are contemplated and appropriations by Congress will be urged.

RECENT DEATH

CROWELL—Dr. Samuel Crowell, gynecologist and abdominal surgeon, died at his home in Dorchester after a month's illness, July 17, 1929, aged 71.

The son of the late Samuel and Mary Howes Crowell, he was born at Brooklyn, N. Y., December 16, 1857. His education was received at Chauncy Hall School, Boston, and at the Massachusetts Institute of Technology; his M.D. from Harvard Medical School in the class of 1885. After study in Vienna he settled in Dorchester and devoted himself to his specialty. For many years he maintained a private hospital and also was surgeon to the Women's Charity Club Hospital in Roxbury and to the New England Baptist Hospital nearby; he was also consulting surgeon to the Soldiers' Home, Chelsea.

Dr. Crowell was active in the patriotic societies, being past president of Boston Chapter, Sons of the American Revolution, and a member of the Massachusetts Society of Mayflower Descendants. He was a Mason and past vice-commodore of the Boston Yacht Club.

He had been active in the affairs of the Massachusetts Medical Society, having been president of the Norfolk District, a councilor from that district and a member of the standing committee on Membership and Finance of the parent society up to the time of his death.

Dr. Crowell married Marie Lincoln in 1884. She died in 1898. In 1901 he married Nellie Washburn French, who died in 1928. He is survived by three sons.

CORRESPONDENCE

SUB-ACUTE TONSILS

Editor of the New England Journal of Medicine:

From the point of time Sub-acute Tonsils do not vary from the chronic ones. Both run a long and protracted course with occasional flareups. But from the point of clinical pathology and symptomatology they vary very widely.

The germs on their toxins are, slowly but actively, at work all the time in sub-acute tonsils. They seem to differ from the acute kind only in intensity and rapid action.

Observations on the course and symptomatology of this variety of tonsillar infection on a number of tonsils, for several years, proved them all always to be treacherous.

It remains for the bacteriologist to classify the bacteria and toxins of this particular type of inflammation and for the cardiologist to correlate sub-acute endocarditis with sub-acute tonsillitis. The same problem confronts the kidney specialist in the sub-acute nephritis cases, and so on.

It is reasonable and logical to assume that this particular type of infection we are dealing with is of a special entity.

This particular germ or toxin continually irritates, but does not stimulate. It does not give the tonsil a chance to organize itself for protection. It does not stimulate fibrosis. Hence the greatest amount of absorption over a long period of time and therefore most disastrous.

The removal of this class of tonsils gives the most promising results. The patient, whether child or adult, should rest, however, longer after the enucleation of such tonsils.

We consider a tonsil to be in a sub-acute state whenever there are visible blood vessels coursing its surface or a definite injection of the anterior pillar, depending upon the location of the tonsil. Of course we do not consider here the same appearance above described following a recent attack. Then it is only the terminal resolution.

The pillar injection and blood vessels disappear eventually and everything may be normal again for a while.

Sub-acute Tonsils may have always existed in such a state as may date back to an old acute inflammation.

JOSEPH PRENN, M.D.

A COPY OF A LETTER TO THE BOSTON SCHOOL COMMITTEE

West End Jewish Community Center
6 North Russell Street, Boston, Mass.

July 11, 1929.

The Boston School Committee.
Gentlemen:

The West End Neighborhood Conference desires to take this means of extending to the Boston School Committee its sincere thanks for its recent decision to assume the management and control of the extension of street play work. Under the guidance of your efficient organization much good can be accomplished in this direction.

Some few years ago this project was commenced on a small scale by the West End Jewish Community Center, a district house of the Federated Jewish Charities. That organization saw the need of street play recreation work. Many children were playing about the alleys, doorways and streets, and though in some instances playgrounds were nearby, children did not take advantage of them. Where organized playgrounds were not available, the children played in the streets, the only playground they knew. Two years later the West End Neighborhood Conference, composed of social agencies in this district, undertook to finance this work. Two recreation workers were employed and hundreds of children were reached each summer. So much good resulted that this work has continued with greater vigor and with more effective results. Now through this project literally thousands of children are picked from the streets and introduced to the playgrounds where under experienced playground teachers and with modern methods and supervision they get proper attention. Such work must necessarily result in better communities, better homes and better men and women.

Much credit is due to the Boston School Committee for its foresight in undertaking such a constructive program. It is our sincere hope that the results accomplished by your Committee will so prove the effectiveness of the work that it may be extended to other parts of the city.

Sincerely,
WEST END NEIGHBORHOOD CONFERENCE.
(Signed) (Mrs.) Ida Z. Green,
Vice-chairman, Street Play Committee.

PRIZE AND MEDAL FOR AN APPROVED ESSAY

American Association
for the
Study of Goiter

July ninth, 1929.

NEW ENGLAND JOURNAL OF MEDICINE, Boston, Mass.
Dear Sirs:

The Executive Council of the American Association for the Study of Goiter has instructed me to inform you that a prize of three hundred dollars ($300.00) and a medal of honor will be awarded by the Association to the author of the best essay based upon original research work on any phase of goiter, presented at their annual meeting at Seattle, Washington, in September, 1930.

Competing manuscripts must be in the hands of the Corresponding Secretary by July 4, 1930, so that the award committee will have sufficient time to thoroughly examine all data before making the award.

Full particulars of other regulations governing details of the offer will be furnished on application.

If you will kindly give the contents of this letter full publicity especially among those interested in research work, we will greatly appreciate it.

The American Association for the Study of Goiter hopes this offer will stimulate valuable research work on the many phases of goiter, especially on its basic cause.

Yours very sincerely,
J. R. YUNG,
Corresponding Sec'y.

Rose Dispensary Bldg.,
Terre Haute, Ind.

INFORMATIVE LITERATURE RE INFANTILE PARALYSIS

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston.

July 9, 1929.

Editor, NEW ENGLAND JOURNAL OF MEDICINE.
Dear Doctor:

From time to time the Department receives requests from physicians for informative pamphlets on the subject of acute anterior poliomyelitis (infantile paralysis). We have and will send to any physician in the Commonwealth on request, as long as our supply lasts, any one or all of the following reprints:

"The Diagnosis of Poliomyelitis" by J. P. Leake, United States Public Health Service.

"The Early Diagnosis of Non-paralytic Anterior Poliomyelitis" by Eliot H. Luther, M.D.

"Muscle Training in the Treatment of Infantile Paralysis" by W. G. Wright, United States Public Health Service.

"The Control of Infantile Paralysis" by J. L. Morse, M.D.

Yours truly,
GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

HABIT-FORMING DRUGS

1325 Commonwealth Avenue, Boston, Mass.

Editor of the NEW ENGLAND JOURNAL OF MEDICINE:

The recent letter by the Commissioner of Public Health on "The Menace of Certain Habit Forming Drugs" calls the attention of every practitioner that is interested in the welfare of the community to this subject.

I, sometimes, begin to think that the sun does not rise in the East but in the West. The most advanced medical legislation, we find in the Western states. It is very logical for Western California to prohibit the pharmacist to sell veronal and barbital without a physician's prescription but not for conservative Massachusetts.

I think human life should be considered first at all times even in this state. All heart depressants, such as *aspirin* or any other drug that is generally taken as an analgesic should be forbidden to be dispensed without a physician's order. I know it will hurt Bayer's business or even our daily papers that are advertising such potent drugs will oppose such humane legislation. However, with all sincerity may I ask every reader of these lines, are we here to protect the money bags or human flesh and blood?

Hon. Dr. Bigelow asks: "Are we going to legislate about everything that may be a menace to life and health? None of us would cross the street without a license." There is no danger in crossing the street for the average person who has two eyes or even one eye. There is, however, danger for any man or woman to keep on taking *Aspirin*, *Veronal*, Codeine, *Morphine* for any pain without knowing what the pain is due to. Not only does the individual get the habit of taking the drug, but the disease that requires medical attention becomes chronic.

To expect any legislation for the health and life of our citizens from our law makers, is indeed too much. They are not in the State House for that purpose. One good lawyer representing some patent drug company could make the entire body look like three cent pieces. Any cult can come up before the legislature and convince them that vaccination against smallpox is a menace to humanity, that it is dangerous, and shortens the average human life and they believe it.

I suggest that before our legislatures become civilized every physician should have on his prescription "*do not repeat.*" This will help to bring the patient in touch with the physician every time he or she needs to refill the prescription. As it is now, if a patient is given a prescription for any malady, the patient often tries to refill the same. The original prescription may have been given for an ordinary headache due to some cause. In 2 years hence the patient may have a headache due to a tumor of the brain and the same patient will try to refill the prescription. This step will eventually educate the pharmacist that he is not supposed to sell drugs for the customers' symptoms, but recommend him to the *free clinic* or a *competent physician.*

When druggists and physicians unite for the welfare of the people, legislation will not be necessary. Educate the *physician*, the *druggist* and the *patient* for health and life.

WILLIAM FRANKMAN.

NEWS ITEMS

OPENING OF THE NEW BUILDING OF THE LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE—The Rockefeller Foundation has made a grant which has made possible the new building of the London School of Hygiene and Tropical Medicine. The Prince of Wales officially opened the building July 18, 1929. This structure has cost $2,500,000.

SMALLPOX AND MENINGITIS INCREASING—Smallpox and cerebrospinal meningitis are moderately increasing in the United States as compared with conditions a year ago.

QUARANTINE AGAINST PERSONS FROM CHINA AND THE PHILIPPINE ISLANDS—The State Department has published a temporary order restricting the entry into the United States of persons from China and the Philippines as a precaution against epidemic cerebrospinal meningitis.

Since November, 1928 seventeen trans-pacific vessels have brought patients suffering with epidemic cerebrospinal meningitis among Oriental steerage passengers.

NOTICES

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces the following open competitive examinations:

Physician, $3,800 a Year
Associate Physician, $3,200 a Year

Applications for the above-named positions must be on file with the Civil Service Commission at Washington, D. C., not later than December 30.

The examinations are to fill vacancies in hospitals of the Veterans' Bureau for duty throughout the United States.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

Senior Pharmacologist, $4,600

Applications must be on File with the U. S. Civil Service Commission at Washington, D. C., Not Later than August 5, 1929.

The United States Civil Service Commission announces an open competitive examination for the position named above. A vacancy under the Food, Drug & Insecticide Administration, Department of

Agriculture, Washington, D. C., and vacancies occurring in positions requiring similar qualifications will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

DUTIES.—The occupant of this position will be expected to assist in the development of the latest methods of biological assay work for the purpose of standardizing such preparations as extract of digitalis, ergot, cannabis indica, and the like, as provided for in the U. S. Pharmacopoeia. He will also co-ordinate the activities of the pharmacological unit with those of the medical unit of Drug Control and will pass on the pharmacological action of medicinal preparations where no pharmacological tests have been made in Drug Control.

He will be responsible for the medical application of the pharmacological facts arising in connection with investigations under the food and drugs act into complicated medical preparations and compounds. He will be required to prepare correspondence and conduct conferences where the actual application of pharmacological knowledge to medicine is the essential feature.

PREREQUISITES.—Applicants must show that they have been graduated from a medical school of recognized standing, and in addition must have had at least four years of recent, responsible and progressive experience in scientific work in the field of pharmacology. This experience must have been such as to demonstrate clearly the applicant's ability to perform the duties outlined above. Additional credit will be given for experience in chemistry or pharmacy.

WRITINGS.—Applicants must submit with their applications a list of publications, of which they are author or co-author. The publications will be considered in evaluating the experience of applicants.

AGE.—Applicants must not have reached their fifty-third birthday on the date of the close of receipt of applications. This age limit does not apply to persons entitled to preference because of military or naval service, but such applicants must not have reached the retirement age.

RETIREMENT.—Classified employees who have reached the retirement age and have served fifteen years are entitled to retirement with an annuity. A deduction of 3½ per cent. is made from the monthly salary to provide for this annuity, which will be returned to persons leaving the service before retirement with 4 per cent. interest, compounded annually.

PHOTOGRAPHS.—Applicants must submit with their applications their unmounted photographs, taken within two years, with their names written thereon. Proofs or group photographs will not be accepted. Photographs will not be returned to applicants.

RESIDENCE AND DOMICILE.—To be eligible for permanent appointment to the apportioned service in Washington, D. C., applicants must have been actually domiciled, for at least one year next preceding the date of the examination, in the State or Territory in which they claim legal residence. The officer's certificate of residence in the application form must be executed.

PHYSICAL EXAMINATION OF APPOINTEES.—In view of the benefits granted employees under employees' compensation and retirement legislation, persons appointed may be required to pass a physical examination by a physician in the Federal service before entering on duty.

APPLICATIONS.—Form 2600, which is required, may be secured from the following (the title of the examination desired should be stated): The U. S. Civil Service Commission, Washington, D. C.; the Secretary of the U. S. Civil Service Board, Customhouse, Boston, Mass., New York, N. Y., New Orleans, La.; Post Office, Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif., Denver, Colo.; Old Customhouse, St. Louis, Mo.; Federal Building, Honolulu, Hawaii; Administration Building, Balboa Heights, Canal Zone; or the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Form 2600 should be properly executed, including the officer's certificate of residence, but excluding the medical certificate, and must be on file with the U. S. Civil Service Commission, Washington, D. C., not later than the date indicated above.

The exact title of the examination, as given at the head of this announcement, should be stated in the application form.

PREFERENCE.—Applicants claiming preference because of military or naval service should attach to their applications the papers relative to such service called for in the application form.

Issued July 6, 1929.

THE UNITED STATES VETERANS' BUREAU NEEDS PHYSICIANS

Anticipating the need of physicians for the future, the U. S. Veterans' Bureau proposes placing on duty at its several hospitals throughout the United States thirty additional physicians as soon as they can be secured. These physicians must meet the requirements of the Civil Service Commission as to the training and experience; in general, it may be stated that they must have graduated from a Class A Medical School within five years of date of application and, in addition, must have had at least one year's interneship in a general hospital.

Physicians who have had training and experience in such specialties as neuropsychiatry, operative surgery, eye, ear, nose and throat diseases, and clinical pathology, are particularly urged to forward their applications to the U. S. Civil Service Commission, 1724 F Street, N. W., Washington, D. C., and request that the necessary forms be sent them for execution.

The Medical Service of the Bureau offers a diversified and interesting service for physicians, with opportunities for research, post-graduate training, etc. The entrance salary is $3200 per annum, and, if the service of the medical officer is satisfactory, he may be promoted in increments of $200 per annum, and upon the completion of three years satisfactory service, he will be automatically promoted to the next higher grade at the minimum salary of that grade,—$3800 per annum.

REPORTS OF MEETINGS

MASSACHUSETTS PSYCHIATRIC SOCIETY

A meeting of the Massachusetts Psychiatric Society was held at the Boston Psychopathic Hospital Friday evening, June 28, and was addressed by Paul Popenoe, Sc.D., of Pasadena, who spoke on "The California Sterilization Law".

PLYMOUTH COUNTY MEDICAL SOCIETY

The Regular Mid-Summer Meeting

This meeting was held at the Jordan Hospital, Plymouth, Thursday, July 18, 1929. The President of the Society, Dr. Thomas H. McCarthy called the meeting to order at 11:30. He gave a short speech of welcome to the members and guests present and then proceeded with a short business program.

Dr. George A. Moore, Secretary of the Society, read the minutes of the previous meeting, after which, under order of new business a motion was made by Dr. John J. McNamara, and seconded by Dr. Charles G. Miles, that a sub-committee be appointed by the President to act in conjunction with the committee appointed by Dr. Greenough, President of the Massachusetts Medical Society, to make preparations for the Tercentenary meeting to be held in Plymouth in 1930, which will be the next Annual Meeting of the Massachusetts Medical Society, June 10 and 11, 1930. Dr. McCarthy then announced that Dr. Chevalier Jackson of Philadelphia, would be the guest speaker at the October meeting, and that the Plymouth District Society would be pleased to have as their guests all of the physicians of the Society that would be interested in hearing this noted man discuss his specialty. President McCarthy stated that Dr. Jackson would illustrate his subject by aid of moving pictures, lantern slides and all of the extensive up-to-date methods used in his line of work. Dr. McNamara moved that the invitation be given through the medium of the New England Journal of Medicine, the official organ of the Massachusetts Medical Society, inviting all physicians that are members of the Massachusetts Medical Society to be present and hear this noted speaker. The motion was carried unanimously. After the business meeting was adjourned, President McCarthy then introduced the speakers of the day.

The first speaker introduced was Dr. John D. Adams, who read an interesting paper entitled "Some Modern Conceptions of Arthritis" and discussed its features. Dr. Adams went into extensive detail upon his subject. He explained the condition of the joints and how they reacted to different tests. He was very forceful and intensely interesting.

President McCarthy then introduced Dr. Cadis Phipps as the next speaker, who gave a very interesting talk on "Coronary Sclerosis." Dr. Phipps demonstrated that he was very well acquainted with his subject and received a very complimentary applause at the conclusion of his talk.

The next speaker introduced was Dr. J. C. White, who took for his subject "New Methods of Diagnosis in Circulatory Conditions." Dr. White went into extensive detail and explained the different methods of diagnosis in this condition. He talked about the different tests used, their reactions and conclusions. He laid great stress on relieving the painful conditions of angina pectoris naming the number of cases that were relieved and helped by the methods he had used in treating this condition.

The last speaker of the morning was Dr. John S. Hodgson, who spoke on the "Diagnostic Methods in Brain and Spinal Cord Conditions." Dr. Hodgson's talk was a commendable effort. He explained the various tests used in brain and spinal cord conditions. He illustrated his various tests by X-ray pictures showing where the various tumors were located and the effect on the patients due to surgical interference. Dr. Hodgson was very eloquent, interesting and instructive.

After the reading of this paper the meeting adjourned and the members of the Society and their ladies and guests departed to the Pilgrim House where an enjoyable dinner was served.

After the dinner Dr. T. H. McCarthy, President of the Society, introduced as the first after-dinner speaker, Dr. George H. Bigelow, Commissioner of Public Health of Massachusetts, who gave a very interesting talk on Public Health matters. Dr. Bigelow went into extensive detail on the obsolete methods that had been used in the past. He then by regular gradations explained the advancement of practically everything pertaining to public health matters and the progress that had been made in all matters pertaining to human comfort. He was very much interested in cancer clinics and stated that these clinics had been very progressive and it would be only a question of time when every city and town in the state of Massachusetts would have cancer clinics in order to help in every possible way those afflicted with this terrible disease.

The next speaker of the afternoon, Dr. Reuben Peterson, a member of the faculty of the University of Michigan, Ann Arbor, Mich., was then introduced. Dr. Peterson was very reminiscent relating to events in his early life. He stated among other things, that he wanted it thoroughly understood that he was a New Englander and that every year he made a pilgrimage to Duxbury where he spent his summers, and was delighted to be present and have the privilege of addressing the Plymouth District Society.

The last speaker of the afternoon was Dr. Francis D. Donoghue, of the Industrial Accident Board of Massachusetts. Although Dr. Donoghue's remarks were very brief, his talk was intensely interesting because it dealt chiefly with the act relative to fees of physicians appearing before the Department of Industrial Accidents on behalf of injured employees in certain cases. Dr. Donoghue read to the Society a copy of the act that was enacted by the House of Representatives April 15, 1929, and passed by the Senate April 16, 1929, and approved April 18, 1929. It went into effect July 16, 1929. A copy is as follows:

Chapter 242

The Commonwealth of Massachusetts

In the Year One Thousand Nine Hundred and Twenty-nine

AN ACT Relative to the Fees of Physicians appearing before the Department of Industrial Accidents on Behalf of Injured Employees in certain Cases.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows: Chapter one hundred and fifty-two of the General Laws is hereby amended by inserting after section nine the following new section:—Section 9 A. Whenever a medical question is in dispute in any case, and an impartial physician has not, prior to seven days before the date assigned for hearing thereon, been appointed by the department or a member thereof, the employee may engage his own physician to appear and testify in his behalf and, if the decision of the single member or of the department is in favor of the employee, a reasonable fee shall be allowed by the member or by the department for such physician's services and shall be added to the amount awarded to the em-

ployee and be paid by the insurer under the provisions of this chapter.

House of Representatives, April 15, 1929.

Passed to be enacted, Leverett Saltonstall, Speaker.

In Senate, April 16, 1929.

Passed to be enacted, Gaspar G. Bacon, President. April 18, 1929.

Approved,

In effect July 16, 1929.

After Dr. Donoghue's brief but very interesting subject, the meeting adjourned. This was the regular Annual Ladies' Meeting and there was a goodly number present to enjoy the banquet as well as listen to the after-dinner speaking.

Among those present were the following:

Dr. John J. McNamara, Brockton, Dr. John S. Hodgson, Boston, Dr. Henry C. Marble, Boston, Dr. Cadis Phipps, Boston, Dr. James A. White, Boston, Dr. Edward J. Denning, Boston, Dr. Thomas H. McCarthy, Brockton, Dr. George H. Bigelow, Boston, Dr. Francis Donoghue, Boston, Dr. Reuben Peterson, Ann Arbor, Mich., Dr. Austin Brant, Boston, Dr. W. D. Kinney, Barnstable, Dr. W. F. Fryer, Middleboro, Dr. C. W. Hidden, Halifax, Dr. and Mrs. Charles G. Miles, Brockton, Dr. and Mrs Charles Dudley, Kingston, Dr. and Mrs. L. B. Hayden, Plymouth, Dr. and Mrs. E. C. Durgin, Marshfield Hills, Dr. Charles H. Colgate, Rockland, Dr Charles H. Gray, Stoughton, Dr. Helen F. Pierce, Plymouth, Dr. Helen Ham, Middleboro, Dr. Walter Pulsifer and Mrs. Ada Pulsifer, Whitman, Mrs. T. H. McCarthy, Brockton, Mrs. E. J. Denning, Boston, Dr. and Mrs. George Buckley, Brockton, Miss Helen C. Doyle, Brockton, Dr. David W. Pope, Brockton, Dr. Henry R. Hitchcock, Dr. W. L. Whitmarsh, Bridgewater, Dr. Howard C. Reed, Whitman, Dr. Leo C. Crimmin, Brockton, Dr. William D. Ducy, Brockton, Dr. I. I. Richmond, E. Bridgewater, Dr. and Mrs. C. Hammond, Hanover, Dr. F. W. Murdock, Brockton, Dr. Alfred C. Smith, Brockton, Dr. Arthur W. Carr, Bridgewater, Dr. William E. Buck, Randolph, Dr. George A. Moore, Brockton, Dr. W. B. Bannerman, E. Bridgewater, Dr. H. T. Handy, Scituate, Dr J. P. Alexander, Scituate, Dr. J. Holbrook Shaw, Plymouth, Miss Laura E. Brown, Hanover, Dr. W. K. Noyes, Duxbury, Dr. and Mrs. E. B. Hill, Plymouth, Miss Grace Mantes, Plymouth, Dr. and Mrs. E. A. Miller, Sagamore, Dr. John H. Weller, Bridgewater State Farm, Dr. William T. Hanson, Bridgewater State Farm, Dr. William E. Curtin, Plymouth, Dr. L. M. Chase, Carver, Dr. H. G. Briggs, Kingston, Miss Alice I. Edgar, Supt. Jordan Hospital, Miss Margaret Miller, Jordan Hospital and Miss Alice Rounds, Stoughton.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

September 27-28—New England Surgical Society. Detailed notice appears on page 1227, issue of June 6.

October 7-19—New York Academy of Medicine. Detailed notice appears on page 468, issue of February 28.

November 4, 5, 6 and 7, 1929—Clinical Congress and Eighth Annual Meeting of the American College of Physical Therapy. See page 149, issue of July 18, for details.

December 2-6—The Radiological Society of North America. Complete notice appears on page 149, issue of July 18.

May 5-10, 1930—First International Congress on Mental Hygiene. See page 191 for details.

DISTRICT MEDICAL SOCIETY

Norfolk District Medical Society

Schedule of meetings for the year 1929-1930. Invitations have been sent to the speakers and the list is true only on condition of their acceptance.

October 29—Medfield State Hospital, Harding, Massachusetts. Papers by the Staff.

November 25—Roxbury Masonic Temple. Dr. Roger Graves, "Urology from the Standpoint of the General Practitioner." Surgical discussion. Medical discussion.

January 27, 1930—Roxbury Masonic Temple. "Recent Advances in Diagnosis and Treatment of Syphilis." Speaker to be announced.

February 24, 1930—Roxbury Masonic Temple, 8:00. Dr. Edwin H. Place has been invited to read a paper and has been given carte blanche in the selection of his subject.

March 24, 1930—Roxbury Masonic Temple. Dr. Burton E. Hamilton. Subject to be announced.

May 6, 1930—Annual Meeting. Program to be announced.

The Censors meet for the examination of candidates, November 7, 1929, and May 1, 1930, in the Roxbury Masonic Temple, 171 Warren Street, Roxbury, at 4:00 P. M. Applications must be in the hands of the Secretary at least one week previous to date of examination.

Owing to inability to engage the Roxbury Masonic Apartments on the last Tuesday of the month, such meetings as will be held in the Roxbury Temple will be held Monday evenings as per the dates above.

FRANK S. CRUICKSHANK,
Secretary, Norfolk District Medical Society.

BOOK REVIEWS

Diagnostic Methods and Interpretations in Internal Medicine. By SAMUEL A. LOEWENBERG. F. A. Davis Company. Philadelphia. 1929. Price $10.00.

This book might be regarded as an attempt at presenting physical diagnosis "in extenso". Along with the physical signs of the normal and abnormal we find intercalated clinical descriptions of diseases correlating the latter with the former. The author follows the conventional approach taking up first the subject of history taking and physical examination in general, then the various systems in detail. Starting from the elementary he proceeds through the more intricate methods of physical diagnosis and in general the subject is covered very well, particularly the respiratory system. The sections contributed by his associates on the nervous system and radiology are excellent. At the end of the book a portion is devoted to the interpretation of laboratory findings and some valuable examination forms.

The intention of the author in linking up clinical medicine with physical diagnosis is an admirable one but unfortunately he is hampered by the limitation of space and the extent of the ground to be covered. This results in an extremely superficial description of the various diseases, in places amounting to little more than an eponymic designation of the diseases, thus marring what is otherwise a good book on physical diagnosis.

Several minor omissions were noted: psoas abscess as a cause of the leg being drawn up (p. 12); pulsating exophthalmos under various types of exophthalmos (93); ulcer of esophagus as a cause of dysphagia (119); skin crepitations as a physical sign of interstitial emphysema (322). There is no description of massive collapse of the lungs and coronary thrombosis is omitted entirely. The clotting time in purpura hemorrhagica is not greatly prolonged as a rule (528). The author uses the old style Thoma chamber with the circular platform in his description of blood counting. There are also typographical errors such as celio-spinal for cilio-spinal, redculitis for radiculitis, perivertebral for paravertebral, hypotonus for hypotenus (of a triangle), auricle for ventricle and symptoms is used instead of signs in one place.

Chronic Otorrhea. By A. R. Friel, M.A., M.D., F.R.C.S.I., (London). Published by William Wood and Company, New York.

In this small, 87 page, closely written and well illustrated book, our English co-laborer discusses the use of zinc ionization in chronic otorrhea. An explanation of the formation of chemical ions by the insertion of an electric current into a salt containing fluid is followed by a description of how a zinc solution so treated in a suppurating ear, causes resulting surface coagulations and zinc ion deposits which inhibit or control local bacterial activity.

Out of 234 cases of chronic otorrhea, 143 were cured by one ionization treatment and none of this group needed more than four such treatments. This method was also employed in the schools. Statistics are given. In one table, out of 616 cases treated, 394 were cured, 98 were lost sight of, 26 were still under treatment and 98 had to have operative or other care than ionization alone. In another list, 190 out of 270 were so cured; in a third, 256 out of 320. Details are added as to the conduct of such school clinics.

Briefly the following technic is recommended. From a stock solution of zinc sulphate 5 grams, glycerine 60 cc, aqua q.s. ad 1000 cc, a little is taken, diluted with an equal amount of warm water, and placed in the cleansed suppurating ear, filling the middle ear and the canal. Bubbles are removed by suction with a Siegle's otoscope. Into this solution is inserted a positive insulated electrode while the negative indifferent pole is attached to the arm or leg, proper care being used against skin burns. A continuous or direct, not an alternating electrical current is required. The current is turned on gradually and 3 m.a. are used for 10 minutes when the current is gradually turned off and the treatment is over. If there is any discomfort, less current is used for a longer time (such as 2 m.a. for 15 minutes). Frequently a greyish white coagulum remains in the middle ear. This is not disturbed.

Much is claimed for this method but the reader discovers that other careful routine procedures are carried forward simultaneously and wonders whether the author's thoroughness and skill may not in a measure be responsible for some of the favorable results which are credited to the ionization. However, a method which claims to clear many of these obstinate cases in one treatment certainly has a right to a considered review, and if proven sound, an enthusiastic acceptance as part of a thorough otologist's equipment.

The book would seem to have its chief value in the detailed explanations as to how this ionization should be performed. The method is not new. Perhaps it is not more generally used because it has not been properly employed. Those of us who do not know how to proceed will find careful and sufficient instructions in this book. It is well arranged and is clearly written. Such monographs on specialized technique are essential if the inexperienced are to benefit and avoid errors.

The Principles and Practice of Electrocardiography. By Carl J. Wiggers. Published by C. V. Mosby Co., St. Louis, 1929.

This treatise on electrocardiography is unique in several respects. Approximately one-half of the book is given over to a discussion of the principles that underlie the science of electrocardiography. Here are taken up the physical laws that control impulse formation in muscle and how it applies to the human electrocardiogram. A description of the various types of electrocardiographs that are in current use is taken up; so that a physician who may have an American, English, French, Scandinavian or German type of apparatus will find there some account of his machine. The method of discussing the simpler electrocardiograms is unique and very satisfactory. After showing a particular electrocardiogram, there follows a brief discussion as to how it may be analyzed and finally a discussion of its physiological mechanism and its clinical significance, with some reference to the practical aspects of the particular problems that might arise in such cases. The book is not too long, the print is very legible and altogether it is fairly authoritative.

The Collected Papers of the Mayo Clinic and the Mayo Foundation for 1928, Volume XX. Edited by Mrs. M. H. Mellish, Richard M. Hewitt, M.D., and Mildred A. Felker, B.S. Octavo volume of 1197 pages with 288 illustrations. Philadelphia and London: W. B. Saunders Company. 1929. Cloth, $13.00 Net.

The medical profession has learned to expect these annual volumes that put in such convenient form for ready reference the large number of publications from this great clinic which appear in such diverse types of periodicals. The arrangement of material is similar in the 1928 volume to that in previous years, the papers related to particular specialties or anatomical systems being grouped together. The reviewer was particularly interested in the papers dealing with the alimentary tract, and among these papers by Balfour, Walters and Rankin appear to be of particular importance. The lowering of the mortality record that Rankin has obtained for resections of the rectum and colon seems most encouraging. In the latter part of the book are contained several interesting essays and treatises by Drs. Charles and Will Mayo and Dr. Louis B. Wilson.

The Tonsils and Adenoids and Their Diseases. Irwin Moore, M.B., C.M., of London. Published by the C. V. Mosby Company, 1928.

No phase of otolaryngology has had more written about it than that of the tonsils and adenoids. On the other hand, no phase of this specialty is more deserving of thoughtful consideration. The literature is so abundant and so scattered that the young specialist who is eager to follow the best procedures finds himself confused. It remains for an English colleague to assemble in a carefully indexed and well illustrated book of 395 readable pages, the meat of these many articles and through careful arrangement interspersed with his own conclusions, to join it into a well constructed text book. Each chapter closes with a list of references whose total makes thirty-four pages, the most complete bibliography on the subject that the reviewer has seen in this form.

In his preface the author states as his purpose: "the accumulation and concentration of our present-

day knowledge of the tonsils and the part they play in health and disease, so as to be a guide to the busy practitioner and a handy reference to the specialist."

To the American reader, the Continental viewpoint is of peculiar interest and it may be added that the author is impartial in his citations, calling freely on European and American writers to support his statements. After discussing the anatomy and histology, he devotes one chapter to the tonsil as a focus for systemic infection. Then he deals with the pathology of the tonsil, its medical and surgical care, the complications that may follow tonsillectomy, and the contraindications to surgical removal. The naso-pharyngeal and lingual tonsils are similarly dealt with.

Of especial interest is his reference to the use of London Paste. The author believes in a thorough surgical enucleation of the tonsils when conditions warrant, but there are some who refuse the removal of their diseased tonsils or in whom the operative hazard seems too great. For such, the author has found London Paste very serviceable. In 1863 Fournié of Paris reported 52 cases treated with caustic potash (Vienna Paste). In 1864 Morell Mackenzie improved over this by using London Paste (caustic soda). Advantages claimed for it are: (1) no inflammatory reaction, (2) penetrating, (3) less severe, (4) no hemorrhage, (5) each application to the tonsil takes but five seconds, (6) the capsule is left intact. The number of applications varied from two to fourteen and took in all from three to ten weeks, and the age of the patient ran as low as three years. The method had become obsolete and was revised and perfected by the author fifteen years ago.

The preparation of the paste is as follows: "A small quantity of equal parts of finely pulverized and well mixed caustic soda and unslaked lime is kept at hand and protected from the air which encourages deterioration. A little of this powder is mixed into a paste with absolute alcohol. The proper consistency is essential for the best work; if too thin it may reach parts that should not be touched; if too thick, it does not stick well and pieces may be swallowed. The surface of the tonsil is carefully dried before the paste is applied; "Kotex" is found satisfactory for this. The author devised a special instrument with a shallow oval saucer-shaped end which permits the careful application of the paste to the desired tissue only. The escharotic action on the tonsil is rapid and requires but a few seconds. The next day the tonsil is seen to be covered with a whitish-yellow slough. The paste should be reapplied in from four days to a week. Six to twelve or more applications are used, depending on the size, and the amount of fibrosis.

The escharotic destroys the tonsil in successive layers while the whole organ undergoes general shrinkage. If cocaine is first applied, there is no pain. Its action is unique in that it has a "proclivity for destroying only the tissues of the tonsil" and does not injure "the muscular structure of the faucial pillars and soft palate". It does not tend to seal up tonsillar crypts with scar tissue, as the galvano-cautery does. The author has treated many hundreds in this way among whom there were many professional singers who feared a complete tonsillectomy. He never saw "the slightest attempt at contracture of the faucial pillars or the palate, or formation of any scar tissue." He however reminds us that the paste is a powerful caustic and cannot be applied in a casual manner.

Recent Advances in Psychiatry. By HENRY DEVINE, O.B.E., M.D., B.S. London—M.S. Bristol—F.R.C.P. London. Published by P. Blakiston's Son & Co., Philadelphia.

This book can be highly recommended. It is well written, well arranged, and well indexed.

The American book of its kind is a collection of abstracts of current literature of the preceding year.

This book covers the field, with an introduction devoted to the fundamentals of psychiatry and five subsequent parts entitled:

I. Toxic infection and somatic factors in the causation of the psychosis.

II. The effects of somatic diseases in psychotic subjects.

III. The behavior of the organism in mental disorders.

IV. Biopsychic types.

V. Psychology and the psychoses.

In discussing these subjects the author dovetails our fundamental conceptions with recent advances, whether published in articles or in book form, from the literature in America, England, France, and Germany.

Perusal of this book will well repay a psychiatrist, or any physician interested in psychiatry.

Tuberculosis and How to Combat It. (A Book for the Patient.) Second Edition. By FRANCIS M. POTTENGER, M.D. (Pub.—C. V. Mosby Company, St. Louis, Mo. $2.00.)

On the whole, this new edition of Dr. Pottenger's book is excellent. It contains an immense amount of material and the only criticism which one can make is that of its containing almost too much information. There is a chapter on tuberculin, for instance, which is quite unnecessary. The book would be improved by its omission.

There are 44 chapters in all and I rather feel that the book would be a little easier to read if one did not jump quite so soon from one short chapter of 2-3 pages to another chapter, particularly when they are on allied subjects. In his chapter on "The Child and Tuberculosis" he certainly does not give anywhere near enough details or emphasize the importance of this subject. He states, for instance, on page 252 that "little children should not be allowed to play in rooms occupied by a patient suffering from open tuberculosis". One asks with amazement why the word, "little", when it should be a definite rule that no children of whatsoever age should be allowed to play or come into contact with a patient suffering from open tuberculosis. He goes on to state that it is not wise for children after the first one or two years of life to be in a room with a coughing tuberculous patient! He further states that the mother can be allowed to play with the child with safety if she washes her hands and puts on a newly laundered garment over which she has not coughed and refrains from coughing! This, in my opinion, is absolutely bad advice. But there are many things in the book which are good which more than make up for the lack of emphasis on the subject of tuberculosis and children.

The subject matter is well printed and is easy to read. Patients will find much of value in it.

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